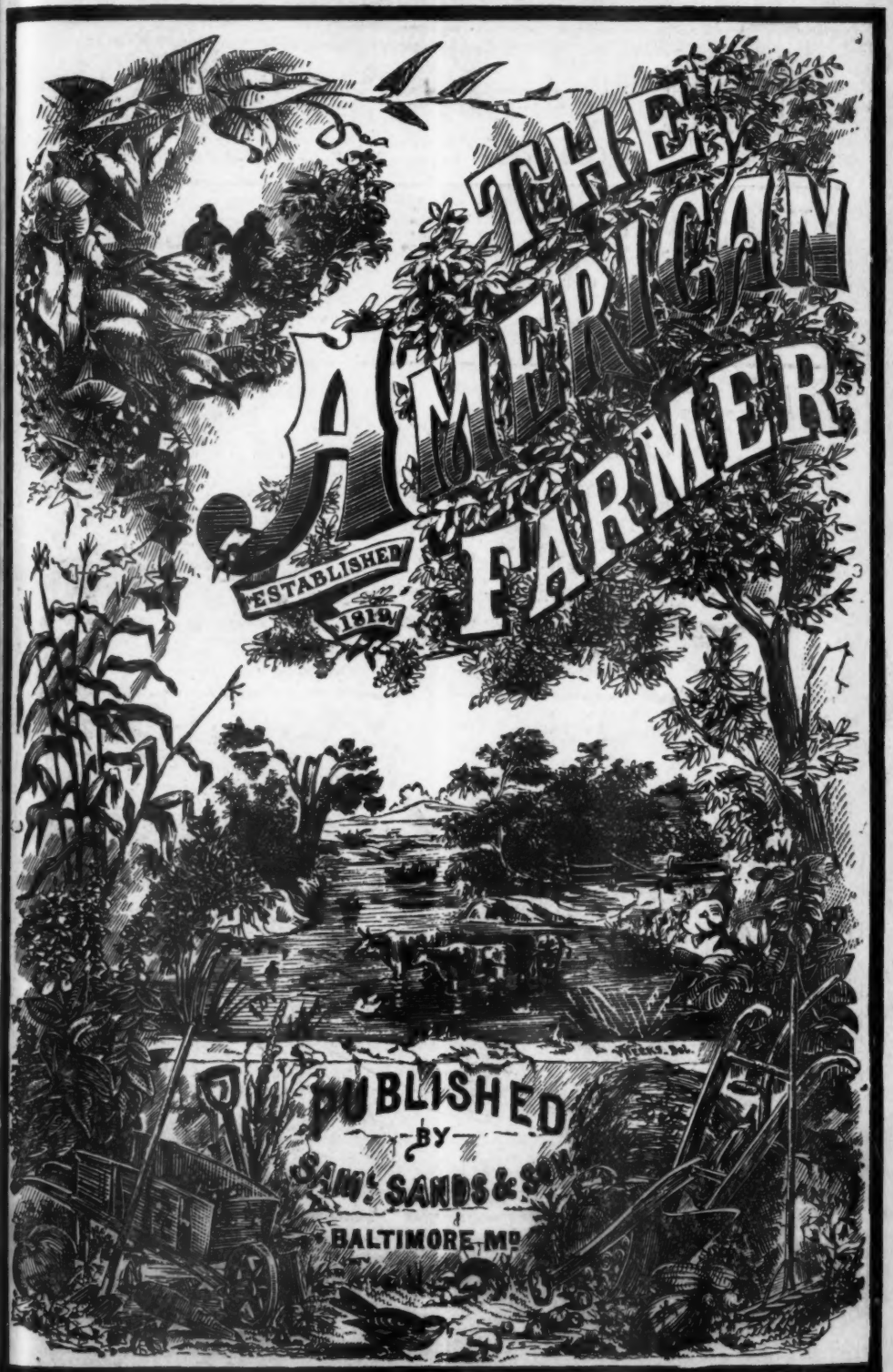

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THE

AMERICAN FARMER.

"O FORTUNATOS NIMIUM SUA SI BONA NORINT
"AGRICOLAS." . . . . . *Virg.*

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Deer Creek Farmers' Club.

The Wheat Crop.

The Deer Creek Farmers' Club met last Saturday, at the residence of Mr. John Moores, Big Woods. The customary inspection of the premises was made by a committee, consisting of Messrs. Archer, Rogers and T. A. Hays. They reported through Mr. Archer, saying that they considered Mr. Moores one of the most practical farmers in the whole country, since he had made farming a success within his own resources. His property showed wonderful improvement since it came into his possession thirteen years ago. They had noticed a field of 25 acres, from which 1½ to 2 tons of hay had been cut, and Mr. Moores' cattle show that it is good pasture now. A field of corn belonging to Mr. Moores came in for a great deal of praise. The chairman of the committee said it was the best he had ever seen. Many of the stalks were 15 feet tall, with two ears to a stalk. While standing it was like an impenetrable forest, the blades touching across the rows. The corn was drilled in rows 3 feet apart, and it was thinned regularly, one stalk to every foot. The land had been manured two years ahead, and was in corn last year also. It was estimated that the yield on a greater portion of the field would be 20 barrels to the acre. Mr. Moores has a nice lot of Essex pigs, and some fine hogs one year old. Mr. Moores' Barbarian colt was also admired by the club. The committee found everything in order and everything in place, and things were seen as they are every day.

The question: "Variety and quantity of wheat sown per acre; time of sowing, fertilizers used and results of last year's crop." And we give the report of the *Ægis* of the discussion:

Mr. Moores had plowed oat and wheat stubble the latter part of July and harrowed occasionally. A few days before sowing he put on a drag. On the 18th of September he commenced drilling in Lancaster red, (or red Mediterranean,) 1½ bushels strong to the acre, and with it 400 lbs. of bone and 200 lbs. of Whitelock's Vegetator mixed. Ten acres were drilled with red and 17 with Fultz wheat, both being treated alike. At harvest the red was standing perfectly, whilst the Fultz was cut with the fly and straw-fallen. The entire field turned out 30 bushels to the acre. On a portion of the field where the Fultz was sown, some red wheat was mixed with it. Found that portion better than where the Fultz alone was, and thought it no disadvantage to mix red and Fultz wheat together. On ten acres Mr. Moores sowed broadcast, the second week in October, one ton of bone and one ton of salt. Could see no benefit from it, either on the wheat or the grass. Mr. Moores said it would be of great advantage, before seeding, to screen out all small grain and sow only clean seed.

Jas. H. Ball seeded from the 20th to 25th September; on one portion he used Lister's bone and phosphate drilled in with the wheat, and on another part kainit, sowed broadcast on top. The wheat upon which the kainit was applied made fine straw, but it broke down and did not mature. His wheat on high ground, where sown early, was well filled, but on the low parts it was injured. Sowed 1½ bushels to the acre, but thought a smaller amount would do if the seed be good and ground right.

John B. Wysong drilled, beginning 25th September, one bushel of Fultz per acre. On one part drilled in 200 lbs. of Reckord's Compound and on the other 500 lbs. of Reckord's fine bone to the acre. The part on which the Compound was applied kept ahead of the other all the time. The land was thin, but the yield was 20 bushels to the acre.

R. W. Holland drilled on part of a field 2 bushels to the acre, one bushel each way. Used 400 lbs. of Reckord's bone to the acre. Commenced on the 18th of September, but it was sown too early and was attacked by the fly. Ten days later he drilled in some one way, and it was well filled and not taken by the fly. Mr. Holland said he believed in cross sowing if it is not done too early.

R. John Rogers began sowing 20th September and finished the 5th of October. As far as threshed it averaged 27 bushels to the acre. He had doubts about wheat being injured by the fly last year. Drilled some on the 25th of September on stalk ground on which a coat of manure had been plowed in the spring previous for corn. Bone was also drilled in with the wheat. The straw was large, but would break about one foot

from the ground, and was difficult to save. It was not so well filled as that upon oat stubble, alongside, on which one-third phosphate had been applied with the bone. That stood up well, and the yield was one-third more. It was all Fultz, 1½ bushels being drilled to the acre. He thought it generally of no advantage to plow stalk ground for wheat. Mr. Rogers thought from 100 to 150 lbs. of good phosphate with bone would show good results on wheat.

Wm. Munnikhuysen sowed on clover sod, on the 17th of September, 200 lbs. of kainit with Reckord's dissolved bone, harrowing the wheat and fertilizers in. Sowed 2½ bushels of wheat to the acre. The fly was as bad as he ever saw it. He put 40 head of sheep on it and kept them there a month. The wheat came on afterwards and yielded 21 bushels to the acre. On stalk ground he sowed the wheat broadcast, using the same quantity of kainit and bone dust, putting it in with a cultivator the latter part of September. It looked splendidly, but was attacked by red rust and broken down by a storm. The yield was 11 bushels to the acre, but as pretty wheat as the other. It was all Fultz wheat, and he was satisfied he lost considerably by sowing too early.

Bennett H. Barnes said he plowed wheat stubble, rolled, harrowed and drilled in Fultz wheat with 400 lbs. of bone-dust to the acre on a portion; the remainder was drilled on the 1st of October, and was better wheat than the first, which was attacked by rust or fly. Eight acres, which he has threshed, yielded over 30 bushels to the acre. He also tried a few acres of longberry, plowing the land in the spring and again in the fall. It stood up better and will turn out more than any he has.

Geo. K. Glasgow last year plowed corn ground and wheat stubble, spreading a mixture of 500 lbs. of bone, kainit and plaster to the acre, and also 325 lbs. of bone to the acre with the wheat. The wheat stubble was seeded the 11th September and the corn ground the 1st of October. The former yielded 15 and the latter 8 bushels to the acre. The corn-ground wheat was attacked with red rust, probably caused by the warm weather in May, and fell down. It was all Fultz wheat.

Joshua Rutledge sowed Keyes' Prolific Mediterranean and Fultz. The Keyes' was the best, and was not rusty nor fly-eaten. The Mediterranean was next and the Fultz third. Commenced sowing September 17th. The early sowing was the best. The Fultz sowed later tumbled down. Copes' phosphate was used. His experience is that the more work you put on ground the more wheat you will get. Sowed 1½ bushels to the acre, the yield being 25 bushels.

Thomas Lochary seeded wheat stubble, thin ground, in Fultz wheat, the last of September. Aimed to drill in 2 bushels, but thought he got in 2½. Used 500 lbs. of fine bone to the acre, but did not think it acted well. The yield was 17 bushels to the acre, but his impression was that if he had sowed 2 bushels he would have had more wheat. He believed the bone he used was pure, but the land needed something else.

Wm. Webster seeded his corn ground from 23d to 25th of September. There was an appearance of rain and he commenced in a hollow, lest the ground should get too wet. Used 200 lbs. vegetator mixed with 200 lbs. of fine bone. The worst wheat in the field was there. On other parts used Pacific guano with bone. There wheat of the same variety, drilled in the same manner but several days later, produced 25 bushels to the acre. The first field, which was the richest, yielded 8 bushels. It was injured by the fly. He thought 1¾ bushels better than any amount over 1½ bushels in seeding. Where the ground is good, wheat will stool out more and the heads will be larger. He did not think a big crop could be raised without ashes or phosphate.

Thos. A. Hays said the first wheat he sowed last year was 8 or 9 acres, the 1st of October. One-half had been in wheat the year before, and the other half new sedge. The latter produced the best wheat. Used 500 lbs. of bone-dust and Patapsco guano to the acre. He finished seeding 15 acres of corn ground before the 10th of October, using Holloway's Excelsior and bone and Patapsco guano mixed. The Excelsior produced excellent wheat. The other looked well until May, but did not hold out. The bone-dust yielded next to the Excelsior. On the 16th of October he finished seeding 45 acres of sedge land. Commenced plowing it in February and finished in June. Part of it was replowed and there the wheat was best. Used on this 150 to 300 lbs. of Peruvian guano with 500 lbs. of bone-dust to the acre. The yield was very good. Sowed 1¾ bushels seed to the acre, the yield being 12 bushels. He believed he put on too much seed, the heads being shortened by it — Considered early sowing a good fertilizer. His wheat was all Fultz.

Wm. F. Hays seeded stalk ground. It was badly eaten by rust and yielded 9 bushels. The land was cultivated and Allen's bone drilled in. Another plot was new ground, plowed in the fall of 1878, and replowed in July, 1879. Applied to different portions of the field 300 lbs. Patapsco guano, 400 lbs. of bone and 150 lbs. of Peruvian guano; and 500 lbs. of bone and 50 lbs. of Peruvian guano. The yield was 38 bushels to the acre. On another field used 400 lbs. of bone and 45 lbs. of Peruvian guano. Drilled in 1½ bushels; yield, 21 bushels to the acre. Had excellent wheat and grass, except where the Patapsco guano was used. Where 50 lbs. of Peruvian guano was applied the wheat and straw were better than elsewhere. Also tried 50 lbs. of kainit per acre on a part of the new ground and saw no effect from it.

T. A. Hays said he had sowed 200 lbs. of kainit to the acre, and could see no difference in the wheat but thought he used too little. Mr. Moores had also applied kainit at the rate of 1,000 lbs. to the acre, in November, and saw no good to wheat nor grass.

W. D. Lee plowed in August, drilled 1½ bushels to the acre, commencing September 17th, and raised 15 bushels. Used 300 lbs. of raw and dissolved bone, in equal parts. Where he put 400 lbs. on corn ground the wheat was better. It was all Fultz. On his fallow ground he raised 25 or 30 bushels to the acre. The most wheat was on his wheat stubble.

S. M. Lee sowed the last week in September, part red and part Fultz, the red being sown first. Drilled in 200 to 400 lbs. of fine bone. At harvest there was one-third less Fultz than red. The failure he attributed principally to red rust, or what used to be termed blight or blast. He thought rough-bearded wheat the surest to produce a crop.

R. Harris Archer said that as he had not been farming himself last year he could only give his opinion and the results of the work of his tenant. His wheat ground was plowed early and bone sown broadcast as soon as plowed. The wheat was drilled about the 14th of September, a little fertilizer being used in the drill. The wheat looked well until the warm days in May, when it suddenly changed in appearance. The yield was 10 bushels to the acre. Three different kinds of fertilizers were used, but saw no difference in the wheat. There was plenty of good straw, but the wheat was shrivelled. Plowing stalk ground for wheat does better on some land than on others. His farmer had raised Fultz wheat for the last five years and made money. This year all the big crops are of Fultz wheat. Failures in exceptional cases ought not cause us to discard the Fultz, for the red also fails sometimes.

James Lee put on one field 200 lbs. of kainit and 700 lbs. of bone, sowing 1½ bushels of wheat to the acre on the 16th of September. It was struck by the fly and a poor crop was the result. On another field he applied 400 lbs. of the same fertilizers to the acre, the land being one-half stalk ground and one-half wheat stubble. The yield was 22 bushels to the acre.

The club adjourned to meet at Thos. A. Hays' on the 23d of October. Question for discussion: "County Taxes."

The Gunpowder Farmers' Club

Held its September meeting at Dickinson Gorsuch's, with an attendance of every member.

The tour of inspection showed on every side evidences of the painstaking and energetic farmer: the fields in good condition, the work well pushed ahead; buildings in neat order, the great Pennsylvania barn full to overflowing; stock all testifying to watchful care, and the manure, if less abundant than formerly, from the fewer cattle kept, cautiously preserved and not permitted to run to waste.

Half-Hour for Questions.

What shall I do with my potatoes—Early Rose—just matured? D. Gorsuch would leave them in the ground still. E. Scott would dig and put in cellar.

Jos. Bosley—The sooner they are taken out, when the ground is dry and the vines withered, the better.

A. C. Scott—What is the best way to put away apples to keep them?

N. Miles—Barrel them from the tree, and keep them dry in a cellar or loft. Preserve from the air as much as you can. It is better to head the barrels up.

An inquiry was read from Prince William Co., Va., asking how best to use hen manure for wheat and what to "reduce" it with.

B. McL. Hardisty—Moisten and put in a pile, and it will soon become reduced to a fine powder; then mix with plaster to keep it from losing ammonia. The moisture is soon absorbed, and in a day or two it is fit to use in the drill or otherwise. Has had excellent results from its use on wheat, but generally applied it to vegetables, at the rate, probably, of 200 or 300 lbs. per acre. The plaster added is probably not over 10 per cent. of the weight of the manure.

A. C. Scott—Saw a lot of hen manure which had become very dry run through a threshing machine, which made it very fine.

E. H. Matthews—Had used in same way as Mr. Hardisty, but it took three or four days to reduce and make it fit for drill. It was wet (mushy) before it was treated.

Dr. M. Merryman—Would recommend running through a threshing machine or corn and cob mill and then mixing with bone-dust; one part of the fine manure, which is rich in ammonia, to nine parts of the bone, which is rich in phosphates.

J. D. Matthews—Holds to the opinion that the proper place for hen manure is to thoroughly mix with the barn-yard manure, which is improved thereby, while no loss is possible. Would, indeed, prefer to use all commercial manures in the same way.

Dr. M. Merryman—Thinks it a great waste to use such fertilizers in any mixture with stable or barn-yard manures, or with earth. They ought to go at once into the ground near the crops.

Jno. Crowther, Jr.—Found recently that some chicken manure which had been put in bags and stored away in a dry place had eaten the bottoms of the bags out and had become a dry powder.

J. D. Matthews—Had the most valuable results from hen manure on potatoes, and last year it beat everything else he applied on them. This year his potatoes are a failure, the season being a very unfavorable one.

E. Scott—Mixes hen manure with coal ashes. Tried alongside of a popular potato fertilizer, the latter was beaten all to pieces.

An inquiry was submitted from St. Mary's Co., Md., as to the best method of extirpating garlic from land intended for wheat, it being almost as thick as the grass.

E. Scott—Make the ground so rich that the wheat, clover and grass will grow so thick as to smother out the garlic. When a crop fails, then the garlic comes in.

D. Gorsuch—The field we saw this afternoon was so cured when it had been badly infested. Thorough cultivation is a preventive.

L. M. Bacon—Has heard Hungarian grass would smother garlic; and Dr. Merryman thought field peas would.

B. McL. Hardisty—Has a patch now in grass formerly in currants, continually cultivated and kept clean; is full of garlic—as full now as nine years ago, before it was so frequently stirred.

The discussion of the question,

How to Raise Wheat Profitably,

which was not concluded at the last meeting, was resumed.

Col. Franklin—His experience enables him to add little to the expressed views of the members who have spoken. Believes in careful preparation.

A. C. Scott—The best way is to get land in as good order as possible, and to go back to the old way of turning under a clover sod would be more profitable than using so many fertilizers. A neighbor of his, who has never used a pound of fertilizer, but who plows down clover leys, gets average crops of 20 bushels per acre, which not many of us can do with from 150 to 200 lbs. of super-phosphates.

E. Scott—The most profitable way to raise wheat is on corn land.

L. M. Bacon—Is a new beginner, trying to learn all he can.

E. H. Matthews—Tries to get land in good condition. As to whether we shall roll after sowing: on a very hilly field, where the ground was light, he rolled *twice*. That was the only land that did not wash. Would mix plaster with fertilizer. He had tried on the same land mixing the two, and applying the fertilizer without the plaster. On the part where the two were applied together, the grain and grass were both better than where no plaster was added. On another plot, where plaster was used in the drill by itself, the ground being of similar quality, but with more yellow clay, the wheat was nothing—no account at all—and the grass no better.

An extract was read from a communication in the *Country Gentleman* recommending the use of the common drag on newly-sown wheat fields. It breaks down the ridges and fills up hollows, both of which used to be thought so beneficial to drilled wheat, while quite often they do much more harm than good. The soil on the sunny side of a drilled ridge will thaw while the shady side is frozen, and this, more than anything else, breaks the wheat roots. On a level surface the plant protects all parts perfectly, or at least equally. If grass seed be sown, it is still more important that the ridges be broken down. Timothy sown in the fall with wheat will almost always injure the grain. The better way is to drag the seed before sowing grass seed, and then follow with the roller, which compresses the earth around the roots of the wheat, giving it a more vigorous growth and enabling it to better endure the winter.

D. Gorsuch gave his views on drilling grain.

Several articles were read from agricultural journals, and the club then adjourned.

American Agriculture.

As Seen Through British Spectacles.

It is known to our readers that a committee was appointed by British official authorities to enquire into the state of agriculture in the United States and Canada, the object being to determine the causes why the producers of Great Britain are being undersold in their own markets by the farmers on this side of the Atlantic. The report of Mr. Clare Sewell Read and Mr. Pell, M.P., who visited America the past year on their mission, has been made and printed, and we deem it worthy of a place in the pages of the *American Farmer*, as presenting the views of enlightened men anxious for their own country's welfare. It consists of 16 pages, and a number of statistics and facts which support or explain the conclusions of the commissioners are given in an appendix.

On the importation of live stock the report states that whenever America can show a clean bill of health and live imports are again introduced a considerable trade in store stock will probably be developed. The cost of transit of great numbers of store cattle need not be so heavy as it is now. More of such stock could go in the railroad trucks and in the ships' holds than is now allotted to fat animals; and the animals themselves would not be so cumbrous and helpless, and would be more likely to withstand the evil effects of the long sea voyage than the great, unwieldly, fat bullocks which suffer so much on the sea. The greatly improved "graded" cattle of the West and the pure Shorthorns of the Middle States would make most valuable store stock for winter or summer grazing, and if the cost of transit could be reduced to the same percentage on their value which is now charged for fat animals, the trade in store stock might prove profitable to the American breeder and beneficial to the English grazier. In the meantime it may be worth while to consider if some reasonable quarantine should not be allowed for the purpose of bringing over some of the high-class Shorthorns which are now to be bought so reasonable in America. The constitution, flesh and hardiness of these Anglo-American Shorthorns are so wonderfully developed and strengthened by the unpampered and natural conditions under which they are reared that a few cargoes of their best pedigree stock would certainly greatly improve the common run of Shorthorns in these islands.

With regard to dairy farming, the commissioners point out that cheese factories are more common in the States than butter factories; and their success, until the remarkable fall in the price of cheese eighteen months ago, has been very general. While the great bulk of American butter is, no doubt, poor, the chief part of the cheese is now decidedly good. None of it is really first-class cheese, and it is all exported or consumed when it is very fresh. Some efforts are now being made to introduce the manufacture of different kinds of European cheese into the States, but they can hardly be said to have been adopted to any extent. The bulk of American cheese is of one uniform make, of a like quality, color, and shape. Very little cheese is eaten in America. The amount made each year is 300,000,000 lbs., and of that quantity fully 40 per cent. is exported; while the amount of butter made is estimated at 1,000,000,000 lbs, and only a little over 2 per cent. is sent abroad. The home consumption of butter is, therefore, considerable, and the absence of any great export demand may result

from its general inferior quality. It is startling to find the prices paid for good butter by rich people in the great cities. While the common run of butter in the market may be bought for 10d. per lb., 2s. per lb. is sometimes charged for a supply all the year round, and as much as a dollar per lb. is paid in a few instances. The low prices which prevailed in 1878 caused a number of dairy farms to go in for a more mixed system of husbandry; but this state of things is not expected to last, and larger importations of dairy produce into this country may be expected.

The largest an ' main portion of the report is devoted to the question of the wheat cultivation of the State. The report first of all points out that the annual yield of wheat over the average of a long series of years appears to have just exceeded 12 bushels per acre. For the year 1879 the return of the yield is at 13.1 bushels per acre. With a yield of 12 bushels per acre the Western farmer could deliver from his wagon at the depot, without loss, at 3s. 6d. a bushel of 60 lbs., or 28s. a quarter of 480 lbs., which is 20 lbs. short of the English weight of five centals. The normal price of wheat in America on the east coast will range, not with the cost of production on the farms immediately surrounding the great centres of population and industry, but with the value of land, labor and money in the new land of the West, *plus* the varying cost of inland freight. As it is true that the centre of population and industrial employment in the United States is with certainty and rapidity moving westward, it is equally true that the cultivation of wheat is nomadic, and advances, not in front, but in the same direction, and is regarded by the farmers as more profitable—in other words, cheaper—when conducted on virgin soil at a distance from the points of consumption than in the exhausted district from which they migrate and give place to a population for which they have to buy breadstuffs. Any estimate, therefore, of the prime cost of American wheat in England, will depend materially on the cost of supply from the West. Coming next to the consideration of freights, account has to be taken of the terms on which grain can be moved inland by the "lake" and canal, or by "all rail," as well as on the ocean by sailing or by steam ships. The difference between the cost of transportation from Chicago to New York by water or by rail inland is considerable, being on an average of five years (1875 to 1879 inclusive) 3s. 5d. by water, lake or canal, and 6s. 10d. by rail, per quarter of wheat weighing 480 lbs. About 5s. 2d. is the average of the two rates. In crossing the ocean the difference between the cost of tranportation by sail or steam has been on the average of the past five years so inconsiderable as to require no special attention. The former, however, appears to be cheaper by about 5d. per quarter—5s. in one case against 4s. 7d. in the other, giving an average of 4s. 9½d. Summing up these and a few minor particulars, the commissioners give the following as the total cost in this country of a quarter of American wheat of 480 lbs :—Cost of growing in the West and delivery at local depot, £1 8s.; freight to Chicago, 6s. 8d.; thence to New York, 5s. 2d.; New York to Liverpool, 4s. 9½d.; handling in America, 1s. 1d.; Liverpool charges, 2s. 1d.; total, £2 7s. 9½d. To bring the estimate up to the English weight of five centals the quarter, 1-24th, or nearly 2s., would have to be added. Besides the charges connected with the movement of grain, there are, it is pointed out, commercial causes which will perpetuate the great grain markets on Lake Michigan and the Mississippi. Each of the grain crops comes to maturity within a few weeks, but a year passes (not without cost) before the entire product of a season goes into consumption. The estimate of the cost may before long be affected by a reduction of the freights from the farms to Chicago, to the extent of one-half, and special "through" contracts are said to defy any precise calculations. Allowing a deduction on this head of 3s. 9d., or about 6d. a bushel, the estimate would be brought down to 44s., or, without Liverpool charges, 42s. per quarter.

Through the whole of the report are noticed the aptitude and readiness with which the best machinery is obtained by the farmer in all parts of the United States, and good machinery and improved implements are much more common than in this country. "It may be true," we are told, "that 'a good workman never finds fault with his tools,' but it is truer still that a Yankee laborer is too sensible ever to work with a bad one." The farm laborer, as a class, is said to hardly exist in the States, unless it is among the colored people of the Middle and Northern States. These appear to be settled, domesticated, and contented to stick to one industry. In many respects agriculture suits them; they are fond of animals, and the animals seem fond of them. On this head the commissioners tell a curious story. At a large sale of shorthorns in Kansas City a negro expressed to them a hope that he might not be separated from the bull he was tending and that the purchaser of the bull would allow him to go with it. With the whites employed on arable land the case is very difficult. In the large farms of the West the booth system is carried out, and buildings are put up in which the summer men mess and sleep. In winter they are off to the towns and cities, and it is seldom the same faces are seen two years running on the farm. Mounted overseers or foremen are also engaged for the season at better pay, and these men, long-witted and keen-eyed, leave very little on trust to the ordinary hand. Although wages appear high, the hours of labor in spring and autumn are long, and winter is a period of almost complete cessation from work for man and beast on an American farm.

The London *Times*, in commenting on the report, says:—With American reserves in the background and within reach, corn will not sell in this country for more than the price at which America can send it over to us. In the corn returns of the past week, the price of British wheat is just fractionally below American prices, and as the harvest advances it may fall lower yet. But if we look closely at the report, we shall see that the 42s. or 44s. is an extreme limit, and whether or not it can be brought down to this depends on uncertain conditions, some of which are not yet attained, and others of which

are more likely to fluctuate in the direction of higher than of lower prices. "Ifs" and "mays" play a large part in the calculation. The steady fact is that the American corn-grower is moving still westward, to a greater and greater distance from the Atlantic seaboard. Meanwhile, there is a large and increasing population of consumers springing up within him and us. Supplies which now reach us may in a few years be intercepted on their way, and may go to feed American mouths. We must add, too, that the cost of freights between New York and Liverpool is by no means a fixed quantity. For some time now freights have been unprecedentedly low. With the revival of trade, and with a consequently increased demand for shipping, freights must go up. These considerations make the English harvest a more important thing than it might otherwise be. If corn were likely to be a drug in the market, it would be of less concern whether we grow much or little of it in this country. But if, as there seems reason to believe, it will always command a good *minimum* price, and is more likely to advance than to go down, American competition will be no such fatal thing after all even to our farmers. With a good harvest they may be well able to stand against it, and we may hope that this year the theory will be brought to a test.

Use of Bones as Manure.

The real value of bones in agriculture, says the New York *Times*, was not understood until Prof. Liebig, about forty years ago, discovered the method of making superphosphate of lime from them. Previously it was known that bones were a valuable fertilizer, and probably this knowledge was derived from experiment induced by the strong smell of the waste bone-dust from the old-fashioned bone-button factories. But to what element of the bones the value was due was not known. In an old work on agriculture, in which the waste bone from button factories is recommended as a good manure for light soils when mixed with ashes, it is further stated that those bones which contain the most oil and marrow are the best for manure, and that the better the juice of the bones is spread over the field the more useful they will be. Bones were first used in gardens and greenhouses, and from thence made their way slowly to the fields.—These old ideas are even now current. As soon as the real character of the bone was discovered and its analogy with that of the mineral matter of the most valuable crops,—as soon, in fact, as analytical agricultural chemistry became an established science,—then the true value of bones, or rather of their principal element, became understood. It was found that the phosphoric acid contained in them was the actual source of their value, and that the fat they contained was totally useless. It was then discovered that the soil was deficient in phosphoric acid, after centuries of cropping, and that this element was restored by the application of bone. This may seem an old story to many persons, but the majority of American farmers to-day do not know that bones are of any value to the soil, and are without any interest in the fact that superphosphates of lime restore to the soil the chief element of fertility which is abstracted by the wheat and other grains, the milk, cheese, and live animals, which are carried off from their farms. The inquiries which are so frequently made on this point, and the absence of knowledge which is found in conversation with farmers, prove this. Moreover, if any proof were wanting, the fact that superphosphate of lime is practically unknown in many localities, and is unused, more than it is unknown, would furnish it. This is a thing to be regretted, because phosphoric acid is one of the most abundant substances in nature, existing in inexhaustible quantities in vast beds of rock, and in this form it is equally valuable and much cheaper than in the form in which it is combined in bones. The supply of bones is limited, and it is fortunate that a ready substitute is found in vast natural deposits of phosphate of lime.

Bones consist, when fresh, of 63½ per cent. of mineral matter, of which 55 per cent. (of the bone) is phosphate of lime; 31½ per ct. of organic matter, chiefly gelatine and fat, and 5 per cent. of water. The organic matter contains 3½ per cent. of nitrogen; the mineral matter contains from 20 to 25½ per cent. of phosphoric acid and 30 to 35 per cent. of lime. The phosphoric acid and the nitrogen are the valuable elements,—the former being worth, at 6 cts. a pound, $1.50, and the latter, at 25 cts. a pound, 87 cts.; 100 pounds of bone, then, in a condition to be available, would be worth $237. But bones when whole are only slowly soluble in the soil. In moist soil they will decay and wholly disappear only in so many years that it is necessary to reduce them to a fine state of division to make them useful. This is done by grinding them to powder or by burning them to ashes. The latter method is the cheapest, but the nitrogen is lost; and if the bones can be reduced to powder for less than the value of the nitrogen, the more costly method is the best. But in many cases it is impossible to grind them for want of mills, and then the burning becomes the only practicable method. This leaves the phosphate of lime in the finest possible condition, and sufficiently soluble to be as available for plant food as in the raw bone.

But the discovery of the method of reducing or dissolving, so to speak, the bone, and separating two-thirds of its phosphoric acid from the lime, marked a new era in agricultural practice. This was the entering wedge of chemical or artificial fertilizing, which has now become reduced to a system. At first, as in many parallel cases, the discovery led to most sanguine and extravagant conclusions, and the mineral theory of Liebig's was the fruit of it. This was to the effect that if the substance present in the ash of a plant were supplied to it no other fertilizer was required. Leaving out of account the nitrogen and a large balance which dissappears in the soil somehow and somewhere not yet known, this theory led to much disappointment at first, but in the end, through deeper researches, into much brighter light. The result of this discovery was to make the phosphoric acid of the bone, and of the otherwise insoluble phosphatic rocks and concretionary organic deposits, such as the Charleston and Canadian phosphates, as valuable, so far as their phosphoric acid is con-

cerned, as bones themselves, and to very much increase the supply of raw material for the manufacture of fertilizers.

The process of reducing bone depends for its result upon the greater chemical affinity of sulphuric acid than that of phosphoric acid for lime. In bones the lime is combined with phosphoric acid in the proportion of three atoms of lime (the base) to one atom of the acid. This is known as tri, or three, basic or calsic phosphate. By treating bones with a certain portion of sulphuric acid, two atoms of lime are withdrawn as it were from the grasp of the phosphoric acid, and go to form sulphate of the lime, while two atoms of water from the bone or the sulphuric acid combine with the remaining atom of lime and the atom of phosphoric acid forming a mono or one-basic or calcic phosphate, which, as the phosphoric acid is in excess of its stable proportion and loosely held, as it were, in this unnatural connection, is called superphosphate of lime. It is soluble in water, and therein consists its value to the farmer. When applied at the right time, which is when the plants are drawing their food actively from the soil, it is immediately available; unlike bone, which requires several years for its solution. The process is precisely similar when mineral or rock phosphates are used, and the chemical change is precisely the same.

The value of bones, therefore, to agriculture is very great, because they supply to the soil the very element that is most deficient in it, viz: the phosphoric acid. This acid is present in all plants, and the most nutritious food substances, especially for young animals, are specially rich in it. As we have seen that more than half the weight of the bone of an animal consists of phosphate of lime, and nearly one-half of this consists of phosphoric acid, it can be readily gathered that when the soil is deficient in this needed plant-food, those plants which are the most nutritious do not thrive, and the herbage consists of inferior kinds, which afford insufficient nutriment. Then animals pasturing upon such fields fail in their milk or are of weak constitution. So our most valuable crops, which all contain considerable quantities of phosphoric acid, will fail to grow when the soil becomes exhausted of this necessary constituent These considerations are pertinent at this time, when we are preparing the fields for the wheat crop. Phosphate of lime in a soluble condition is absolutely necessary for the profitable growth of wheat, and unless it is supplied freely the yield of this most important crop will fall off. The average yield of wheat is very small, and much lesss than can afford a profit. If the largest crops are only barely profitable, how unprofitable must be the smallest yields. Up to 40 bushels an acre wheat is found to be much improved by the use of superphosphate, and it is unquestionable that its extended use would add largely to the production of this staple grain.

ALBUMEN and gluten contain nitrogen, and this renews the blood and builds up the lean muscular parts of the body. Besides, albumen and gluten enter into the composition of the bones.

Fish as a Manure.

We find in the *N. E. Farmer* an article upon the subject of the manufacture of fertilizers from fish, as carried on in several of the N. E. States, which will be found of interest to many of our readers. On the shores of the Chesapeake bay and the streams tributary thereto, we have a number of these factories also, but the interest is not so great an one as at the east, where there are several millions of dollars invested in this business.

The value of fish as a manure, and its importance in the industries of our country, have received new considerations from its recent treatment by Mr. G. Brown Goode, in his "History of the American Menhaden," the fish which serves as the basis of the important enterprises carried on in New England in the manufacture of fish oil and fish guano, and which, during late years, have reached so extensive proportions.

In the taking of menhaden and the manufacture of oil and fish fertilizers, there are in the State of Maine eighteen factories, in Rhode Island sixteen factories, and in Connecticut fourteen factories. The amount of capital invested by the companies operating these several factories, is given by Prof. Goode as $1 857,500, which we are inclined to think is much too low. In Maine, alone, according to the report of the Maine Menhaden Oil and Guano Association for 1877, the last date at which we have accurate figures, the amount of capital invested by eighteen companies was $1,083,612. Of course it is readily understood that the production of oil is the chief business of these companies, and that the manufacture of fish scraps, fish chum, fish guano, or by whatever name the residuum of the pressed fish is known, is simply the utilizing of one of the waste products of oil mannfacture into a profitable article of sale. Still, this waste substance of the oil factories is a valuable fertilizer, deriving its chief value mainly from the nitrogen and phosphoric acid which it contains; and taking into consideration the composition, quality and price of the fish scrap which may be produced at the factories, it furnishes nitrogen and phosphoric acid more cheaply than any other class of fertilizers in the market, excepting possibly the Peruvian guanos

A close investigation of the action of fertilizers, in which fish scrap or the refuse of menhaden oil factories forms a leading ingredient, leads to the fact that the crops most benefited by these manures are those which demand considerable nitrogen and phosphoric acid, but are not especially helped by mineral manures alone, such as grass, corn, and the grain crops—preeminently the leading crops of our New England farming. The same is quite equally true of potatoes and garden vegetables, and also of roots. The leguminous crops, as they are termed, like clover, beans and peas, are more helped by mineral manures, and get little good from the nitrogen which fish holds in such abundance.

Some good farmers who have made quite extensive use of fish manure, in one form or another, have thought it injurious, from its quick and stimulating action. It is true that exclusively fish manure soon spends its force, and instances are not wanting among farmers who have used it, which go to show that such manures frequently leave the soil in worse condition than before they were applied—especially if they have been used on the same land for two or three years in succession. But this is no argument against their fertilizing value. It shows that the real cause of the land being left in poorer condition than when such manures were applied, is not due to the manures put on, but to the crops taken off. They exhaust the land by drawing from it elements which the nitrogenous manures put on do not contain, and which repeated applications of nitrogenous manures would not supply. The remedy for this condition of fish-manured land is to apply such materials for fertilizers as ashes, lime, potash salts, vegetable composts, or, better than all, to apply animal dung, made by steers, cows and sheep fed on grass and hay grown from fish-fertilized fields. Such a course will maintain a correct harmony in the principle of manuring, and keep up a just balance in field, crop, stock and fertilizer, which should be the study of every good farmer.

As with other manures, so with fish manure, there is a choice of soils to which it may be best applied. The soils from which highest results might be expected from applying fish guano, are those deficient in nitrogen and phosphoric acid, and in which the stimulating effect of the decomposition of fish may render other materials available for plant food. Soils that have been treated repeatedly with fish guano, phosphates and the various forms of bone manure, are often overstocked with these elements, and are deficient in potash; while it is also true that many soils are naturally poor in potash. Of course it will at once be seen that to apply fish manures to such lands and neglect to apply the other necessary elements wanting in the fish, would be to lose not only both money and time, but very likely the crop. But here the rule that would obtain in the use of fish manures is that which would also obtain with any other kind of fertilizer in the hands of a careful farmer, and that is that the deficiencies of a given soil are best ascertained by actual trial, not only with different manures, but with various crops.

The best form of fish manures is the dry ground fish guano, free from oil. The water and oil left in the "scrap" as the fish comes from the press, add weight and bulk without in any degree improving its value. But experience has proved that the coarse fish-scrap, as it comes from the oil factories, cannot be uniformly spread; is not easily diffused by the moisture of the soil; is acted upon by few roots of growing plants, and becomes slowly available to the roots that do find it. The divided dry fish is, however, easily spread, is diffused by rains, and is thus made accessible to a large number of roots, and can be absorbed by them when they reach it. Perhaps one of the best methods of using the fish-scrap by farmers, is to use it in a compost with muck, good manure, ashes, lime and vegetable refuse, fermenting the whole mass by the use of urine.

There is a higher and more practical consideration connected with this subject to which we have not yet alluded, but which is of vast importance to the agriculture of New England, and it is one which it is the main object of this article to enforce; and that is the greater use of fish manure by our own farmers. At present its principal use is by the manufacturers of phosphates and other forms of commercial fertilizers, by whom it is used for supplying the nitrogen and phosphoric acid to their manures. It is also sent in bulk by the cargo to enrich the lands of France and Holland. Is it too much to expect that at no distant day some effort may be made successful for furnishing their fish-scraps in some portable, concentrated form to our own farmers? To this end we hope to see some earnest concerted action put in operation at once.

Method of Soiling Cows.

Mr. H. Stewart, a well-known authority, contributes the following to the *Country Gentleman:*

Nothing is more certain in agricultural practice than the impossibility of pasturing dairy stock profitably upon land that is worth $100 per acre or over, unless the land is able to support one cow to the acre. This cannot be done on grass alone once out of a thousand times, if at all; for as yet I have not seen a 100-acre farm anywhere that can carry 100 cows on grass and hay the entire year, even with the help of purchased food, as malt grains, malt sprouts, bran, corn meal, &c. But it *is* possible to feed one cow upon an acre for the entire year, if the farmer or dairyman can contrive to produce 15 tons of green fodder upon each acre of his land; and this is not only possible, but easy to do. Mr. J. D. Powell, of Westchester county, keeps 100 cows on 100 acres, and I know of others that do as much with only partial soiling. With complete soiling I have, myself, kept 14 cows on 11 acres the year round, with the help of a few loads of brewers' grains and some bran and meal. More recently I have fed one cow to the acre, and do not think any farmer who is so situated as to practice soiling can fail in any well-managed attempt to do it. The practice of ensilage will greatly help the practice of soiling, because it will provide succulent food for every day in the year, and it can be so arranged that every crop can be preserved in this way, and the land made to produce two crops every year, amounting to at least 40 or 50 tons of the best fodder; and each acre then will keep from two to three cows or even more. Compare the cost of this method with that of pasturing. The best of pasture *may* carry one cow through the season, and one acre of hay *may* put her through the winter. At $100 per acre the interest cost only will be $12 for each cow, which will be the receipts from 400 quarts of milk at three cents a quart, or 50 pounds of butter at 24 cents a pound, and then there are taxes and labor in addition. No dairyman can stand this fixed charge and compete with others who have cheaper lands, or practice soiling; for with soil-

ing and ensilage together it is possible to reduce this interest charge to about one-fourth, and with soiling alone to one-half.

The method of soiling is simple, and I will describe a plan which I have found entirely practicable. Let me say, then, for 20 cows with 20 acres, I would proceed as follows: Sow at once 2 acres of rye, 2 acres more in 15 days, and 2 acres more in 15 days after that. The land should be rich and the seeding thick—say 4 bushels per acre. Four acres of grass or clover will be necessary, and for a permanent business nothing is better than a mixture of 1¼ bushels of orchard grass and 6 pounds each of clover and timothy seed per acre. The rest of the ground should be well plowed and top-dressed with manure or compost this fall; for the key to successful soiling is rich land. If part has a southern exposure that will bring an early crop, so much the better for early feeding. This will be an excellent preparation. About the 20th of April the feeding may begin by cutting the first-sown rye. Twenty cows will consume one acre of rye in six or eight days. The two acres will last 15 days. As early in April as the season will admit, 2 acres of oats are sown with 5 bushels per acre, and 2 acres more in 14 days after, and 2 more in another 14 days. The other 4 acres are planted with corn. I choose Evergreen sweet put in drills 3 feet apart, and hills 18 inches apart, with 4 or 5 seeds to the hill; this will yield 40 tons per acre, or 160 tons in all of green fodder by September 1st, having at least 3 or 4 good ears to each hill. As soon as the 2 acres of rye is cut off, the ground is planted to Minnesota early sweet corn, which will be in roasting ears July 10th to 15th. If there is a market for green corn the ears are pulled and sold, and will pay $70 or $80 per acre at the low price of 75 cents a hundred ears. The 6 acres of rye are planted to corn of this kind in succession, and if the ears are sold will return from $400 to $450, and leave the stalks for the cows. Or the the rye ground may be sown wholly or in part to sugar beets or mangels, and should yield 25 or 30 tons per acre. After the rye, or before it is finished, the grass and clover will be ready; and, as the last of the rye will be somewhat dry and hard, it may be cut and mixed with the fresh grass. The grass will last until the first of the oats comes in, and may be cut again in August and again in October, when it should be cut moderately close and top-dressed and rolled, to put it in good condition for the next year. The first oat ground, cut in July, may be planted to early Minnesota or early Canada corn, the latter giving stalks 8 feet tall, and the planting should be in drills 30 inches apart, and seed dropped 3 every 4 inches apart; this can be done beautifully with the Albany horse corn-planter. This will give in September, or 90 days or less after planting, 25 to 30 tons of green fodder per acre if the soil is rich. The last cutting of oats should be followed with rye for next season. The first sweet corn on the rye ground, cut in July, is followed by sweet corn again, and the second and third are followed in August by German or golden millet, or Hungarian grass. When these 6 acres are cleared off, the ground is sown to rye or wheat for the next year. These 6 acres will thus produce three crops in the year, making in all at least 25 tons per acre. The 4 acres of corn are sown to rye for use in the spring, and may be planted to corn again after the rye is cut in May—giving two crops in the year. Blount's white prolific corn, planted in rows 3 feet apart and 3 inches apart in the rows, has given me stalks 13 to 14 feet high, and over 500 pounds to the square rod, with a large number of half-grown ears, when planted on a rye stubble cut in May. The oats ground will produce two crops; and thus every acre, grass included, will yield either two or three crops in the year. The ground in roots will be cleared off in October, and may be sown to rye, which can be pastured for a change in April. The total yield of the 20 acres may thus be estimated:

	Tons.
Two acres in rye, corn and corn	52
Four do. do. Hungarian	96
Two do. oats and corn	30
Four do. oats (and rye not counted)	20
Four do. clover and grass (3 cuttings)	60
Four do. corn (or roots)	120
Total	378

Rye will produce 6 tons per acre, which is 75 pounds to the square rod; sweet corn, with stalks 5 feet high, will make 10 to 12 tons per acre when grown for ears; if grown close in drills, it will make more. Early Canada corn will make 20 tons per acre. One acre of grass and clover will make 5 tons at each cutting. Oats, when in blossom, will cut 5 to 6 tons per acre; and if some leafy kind, as the Norway, the Probsteier or Black Tartarian, is sown on good ground—as one would soon have it by soiling his cows—I think 10 tons per acre could be grown. I have grown oats more than 5 feet high, and with stalks half an inch thick, on rich ground, and such a crop would weigh at least 10 tons per acre, which is 125 pounds per square rod. Corn I have estimated at only 30 tons per acre, which is very low, and can be doubled without difficulty, with 30 loads of manure per acre—so that the feeding of 20 cows (with 15 tons of green fodder yearly for each cow, or its equivalent of dry fodder food,) on 20 acres is possible, and a considerable surplus may be left over. It is evident that the preservation of the fodder by ensilage will be a great help to soiling, because the surplus of any crop may be cut when it is in the best condition, and preserved in the best state for feeding, and the loss which always results from changing from green to dry feed will be avoided. I have thus used brewers' grains bought in the summer when cheap, and kept until winter when they are dear, with great profit; and corn may be kept as easily. The loss of weight in the process of curing in the silo will be equalized in the higher feeding value of the fodder, as 60 pounds from the silo will be equal to 80 pounds of fresh fodder. I think from what I know of this process that the nutritive value of the fodder is increased to some extent by the fermentation. Dr. Voelcker has this opinion, and it is a reasonable one. In this case, the fodder would spend better when thus preserved. But if the surplus is cured and fed dry, we know precisely what can be done in that way, and no difficulty can arise in any manner

whatever, if there is only feed enough of some kind.

The method of feeding soiling crops is very simple. Fodder racks are provided in the yards and stables, and the fodder is brought in from the fields once a day in a one-horse wagon or a cart. A one-horse mower is kept in the field, and covered, when not in use, with a waterproof tent cloth. The horse is taken from the wagon, put to the mower, and the fodder required is cut down; the first day two rations are cut, and one only is brought in; the second day's fodder is brought in when the thirds day's supply is cut; so one day's feed is always ahead. The feed is brought in in the afternoon for a whole day, and the next day's feed is left on the ground. When the weather is rough and wet two day's feed is brought in and kept under cover, to avoid working in the rain. Wet fodder is sometimes rather dangerous to feed, especially grass and clover, which may cause bloat. Soiling is a little more laborious than pasturing, but one dollar spent in extra labor is repaid ten times over in saving of feed, in saving of land, and in saving of manure. I have found labor very much cheaper than feed.

Beet Sugar.

The treasurer of the Maine Beet-Sugar Company contradicts a published statement that the enterprise in Portland is a failure. He says: "Such is far from being the case. Last year we worked 9,000 tons of beets into 900 tons of sugar and molasses, which we sold for over $110,000 and realized a moderate profit, over and above the state bounty. This year we hope and expect to work more beets and to make more sugar than last year. About October 10 we hope to be turning out at least 15 tons or 30,000 pounds of sugar daily. The only difficulty we have found here in New England is to get enough beets raised to make an extensive and profitable business. Last year farmers who had good land in good order, and who took good care of their beet crops, averaged over $100 cash returns per acre. They did better than on any other staple crop. This year we think they will raise larger crops of beets, with less labor and expense. So far from feeling discouraged, therefore, we are going into this year's campaign with the hope and expectation of converting an interesting agricultural experiment into a permanent business."

Saving Manure.

Geo. C. Clark writes to the Elmira Farmers' Club as follows: "I find the discussions in your club are often on the subject, 'How to make manure and how to use it.' My plan I have not seen suggested. Now this is the plan I adopted nearly three years ago: I graded my barnyards into a basin shape, the lower part under my cow-stable window. Then I settled a cistern five feet deep and eleven feet square. Then I laid my walls with water and cement, so when done it was eight feet square. Then I made a stout wooden frame and placed it in the centre to receive a flagstone covering. This is all below the surface and inclined toward the centre. Then I put in a rubber chain pump high enough to spout out the drainage into a hogshead standing on trucks. I heave the manure from the stable right on to the cistern. This protects it from frost. The drainage from other stables all centres into this cistern. Now, the leaching of the manure heaps is what I save to saturate my land. I use a street sprinkler. Drive about twenty rods and back, the load is discharged. Last year I saw a decided improvement in my meadow; timothy tall and coarse, sold it for retail hay. I use the liquid to mix with Paris green on my potatoes. It is a good fertilizer as well as death to the bugs. I never invested in patent fertilizers. I think a farm that can't furnish its own fertilizers is no farm for me. The above is the cheapest and easiest handled and spread on the fields. I save over 100 loads every year. I think it worth as much as so many loads of manure."

Buildings Made of Concrete.

Few farmers know how to build a concrete wall; yet it is a very simple job, and in many cases would prove an excellent wall for buildings and cellars. To build such a wall you need to set 3x4 joist at the corners, then at intervals of about eight feet along the outside of the wall, placing the joists opposite and about eighteen inches apart. On the inside of the joist set up planks about a foot wide. There will be fifteen inches between these planks, which will be the thickness of the wall. For a large building, which would have heavy floor timbers, the wall might be two feet thick; for a piggery or other small buildings it need not be so thick. Have a cement made by mixing a barrel of good cement with three barrels fine plastering sand and four barrels clean gravel. Wet this when mixed so it will be thin enough to pour, and fill between the planks about three inches deep, then in that pack small stones as closely as possible—the more closely the stones pack the less cement it will take. Then pour on more cement and put in more stones, until your space is full. The work must be so planned as to use your cement and get the stones in it before it has time to harden. For a heavy wall, planks may be raised in twenty-four hours after the space is filled. Raise them about ten inches, and go on as before. I have seen a large barn built in that way which has stood many years; costs about the same as timber wall when built, and needs no paint, no shingles, no repairs of any sort, while the walls are fireproof and rat proof.—*Young Farmer, Boston Journal.*

The New York State Fair.

The display at this year's exhibition, held at Albany, was unusually good in all the live stock classes, except, perhaps, the swine. There were 360 head of cattle, 153 of horses, 131 pens of sheep, 76 of swine, and 415 coops of poultry. The horticultural department, the *Country Gentleman* says, was meagre, implements not as numerous as usual; farm produce above the

average, the prominent features being, from a farmer's point of view, the cattle, the stallions and the sheep.

Ayrshires preponderated, there being 75 specimens on the ground; the Jerseys numbering 73. Of Holsteins there were 45 head, fine all through. The Devons numbered 43 head, the award of the gold medal being hard work. The Herefords were the best for years, there being 26 specimens from two exhibitors. The Guernseys show a great increase in numbers, 23 being present, and there was an exhibition of some Swiss cows and fine specimens of the black polled Angus breed.

Of the horses 30 were heavy draft and the others general roadsters—the draft horses being principally Clydesdales, with some fine Percherons. Merinoes lead all the other sheep classes, there being 240 on the ground. The swine were good in quality, as was the poultry.

During the fair, meetings of the society were held and agricultural subjects discussed.

The Baltimore County Fair.

Three days of unfavorable weather diminished very much the attendance on the fair at Timonium, which, notwithstanding, was a success financially; and in the variety and extent of the exhibits, one of the most satisfactory displays held of late years in the vicinity of Baltimore. Of the 350 stalls for cattle and horses, there were not a dozen vacant,—the Jerseys numbering about 100 specimens, and there being fair representations of all the other popular breeds except Devons and Holsteins, which were wholly lacking. The horse display was, on the whole, a creditable one, both as to numbers and quality; the swine were numerous and good, so many, in fact, as to overrun the quarters assigned them; but the sheep were hardly as good as last year. The poultry display was an interesting one, and some details are given elsewhere of the features of the exhibit. The horticultural department was far ahead of last year's, and the entries of fruits, vegetables and plants were all, as a rule, meritorious. The new hall, erected during the past summer, (a building measuring 46 by 110 feet,) was filled to overflowing with an immense variety of the products of the skill and taste of the ladies of the county, who presented, in endless profusion, domestic manufactures, culinary preparations, and the products of the dairy. The agricultural implement and machinery dealers and manufacturers were present in full force, and their display was a creditable and interesting one.

The trials of speed, whilst not producing any phenomena in the way of fast steppers, were interesting and well contested, the horses being such as were well-known in the community, and making an interest which would not have attached to faster horses from abroad. The trials of equestrian skill, which were engaged in by young ladies and boys, were interesting and well contested and evoked considerable enthusiasm.

The exhibition of the wagon-loads of farm products was by far the most attractive agricultural feature of the fair. The same organizations participated as last year, but their displays were far more comprehensive, tasteful and complete than on that occasion, and the feature was one which commended itself to a great crowd of spectators. The Gunpowder Farmers' Club was fortunate in carrying off the prize, its wagon carrying not only an immense number of the various farm productions, but, as well, specimens of farm live-stock, calves, sheep, fowls, a goat, &c. The Garrison Forest Grange secured the second honor from the judges, who were compelled to leave unrecognized the taste, variety of display and merit of the very handsome displays made on the Centennial and Patapsco Grange wagons.

The plowing matches proved an interesting part of the program of the fair, and were witnessed with much satisfaction by a large number of interested spectators. The money prizes were duly awarded the plowmen, but the diplomas offered were withheld by the judges, who decided that none of the plows fulfilled the requirement of the schedule. Whether this was due to the dryness of the ground, or whether the condition was too hard a one, was not stated.

During the continuance of the fair, a number of amusements of various kinds was introduced for the diversion of visitors, which seemed to be duly enjoyed by them. The fair indeed, which, on account of the rains of Tuesday, Wednesday and Thursday, was continued over Saturday, seemed like a continuous pic-nic or reunion of the county people and their friends from Baltimore and other parts, and thousands gathered daily to view the exhibits and enjoy the various attractions presented.

The interest manifested by the general public was demonstrated by the fact that on Thursday, notwithstanding the almost continuous downpour of a heavy rain, there were between 3,000 and 4,000 visitors on the grounds.

SHEEP-RAISING.—The *Herald and Torch* is informed that Messrs. McKeg and McDowell, two very enterprising young men, intend engaging in sheep-raising in Washington county, Md., on a large scale. They have bought a farm at Mooresville, in the Indian Spring district, peculiarly suited for the business of sheep-raising. They have already a large number of fine sheep and propose to increase their flocks. They are putting up extensive buildings and fencing, and have eight men in their employ.

MR. E. E. HYDE, of Stafford, Ct., says: "My Devon cow Gem made 215 pounds of butter in a trial of 95 days. From a cross with a Southhorn, I have had a cow which made 19½ pounds of butter per week."

Live Stock.

Can Farmers Afford to Improve Their Stock?

Throughout the great and growing agricultural States of the northwest there are thousands of farmers who, for various reasons, most of which are insufficient, have made little or no improvement in the grade of their cattle. Occasionally one will be heard to argue that it doesn't pay; but this class is rapidly disappearing. A great majority admit that the improved breeds mature earlier, take on flesh quicker, and convert grain and grass into beef or milk more economically than the common or native stock, but put in the plea of can't afford to raise *fancy* stock." They point to perhaps the only man in their neighborhood who breeds thoroughbred cattle (probably some man of capital who has engaged in the business more as a recreation than otherwise,) and say: "There is Mr. A.; he has a thousand acres of land and plenty of money; he is able to handle high-priced cattle, but we poor farmers can't afford it." That is the delusion which prevents thousands of farmers in moderate circumstances from having anything to do with blooded cattle. We speak of cattle in particular, because, as a rule, this is the last class of stock which the ordinary farmer commences to improve. * * * It doesn't require a section of land, nor a big bank account, to make a beginning. You need not go to England, nor even to a sister State, to get the "blood" which is so sure to "tell." Good, reliable breeders of Short-horns, Herefords, Holsteins, Jerseys, &c., are scattered all through the States, and will supply, at reasonable cost, a young bull or a few cows, or whatever may be desired. A pure-blooded bull calf can be bought all the way from $50 upwards, and, bred to native cows, will give half-blooded animals which, when grown, will sell readily at high figures, when the "scrubs" are not wanted at any price. If any farmer says he hasn't $50 to spare, let him join his neighbor, and own the animal in common. From this point of view the "can't-afford-it" plea disappears; for, if necessary, a pool of $5 each can be formed. In just that way the breeders of Madison, Clinton, and other counties in Ohio, in early days, formed their associations for importing Short-horns from England, and the great results accomplished point the way for the common farmers of to-day.—*National Live-Stock Journal.*

Polled Cattle.

"How odd they look without horns," is an expression one often hears when persons unaccustomed to polled cattle are first shown a herd of Galloways, Aberdeens, Angus or Suffolks. Many people believe that a well-turned horn is a great addition to the beauty of a fine cow or steer; but if the horn happens to turn the wrong way—into one's own flesh, for instance, or into the bowels of a favorite horse or other animal—the beauty is not so readily discernable. One polled cow in a herd of horned animals does sometimes look a little lonesome. So does a last year's hat or bonnet often look terribly out of fashion in company with a lot of recent make. One's admiration for horns on domesticated cattle is much a matter of fashion.

They are, however, needed no more on the heads of cows than on horses, and, we doubt not, the time will come when they will be about as rarely seen on one as on the other. We have been surprised at the rapid change in public sentiment in this regard during the past few years. The change in methods of transportation, from driving over common roads to shipping on cars and steamboats, has had not a little to do with bringing about this feeling against horns. They are a nuisance at all times, but especially so when animals are crowded closely in cars or on shipboard. Mr. J. H. Wallace, of *Wallace's Monthly*, a lover of animals always, came back from his recent tour in Europe with a greatly increased interest in hornless cattle, owing to his experience with a cargo of fat cattle that were taken over on the same steamship. Horns are supposed to be given as weapons of defence; but even well-disposed cattle cannot avoid injuring each other with them when they are crowded together, as is the custom by modern methods of transportation. However odd a single polled cow may appear to one not accustomed to seeing them, yet we have failed to find a person who was not pleased on seeing a whole herd of them together. It matters little how small the enclosure in which they are turned loose, provided there is room to squeeze by each other; for being weaponless, they never learn either to injure or to fear injury from their companions.

Whether the original condition of the cow was with or without horns, it might be as difficult at this time to determine, as it is just how much no-horn blood is running in the veins of the Short-horns or Jerseys. The latter seem to have but slight power to hold their horns in battles, and the former have many of the points of the best polled cattle.

The greatest interest is directed, at the present time, towards removing horns from animals raised for beef, and to be transported across the continent and the ocean; and for this purpose breeds of a beefy shape are being imported for crossing on the native and other stock on our western grazing lands.

But there is a growing demand for good milking stock of the no-horned breeds for use in the dairy regions. We have numerous letters from correspondents claiming that a pure-bred polled bull will stamp the no-horn strain very strongly in his progeny, and that the get of such animals will generally be without horns, or have them hanging loosely to the skin, instead of being grown to the skull, as is the case with horned cattle. A gentleman at Plainfield, N. J., writes, under date of July 22, "that a black bull of the Galloway breed introduced into his herd of Durhams, removed the horns at once; only two out of twelve calves dropped the first season showing any sign of a horn, and these were blunt things pendant from the skin."

Others have had a like experience, and are led to conclude that the horns may be bred off from all our principal breeds of cattle, by the in-

troduction of wisely-selected polled bulls, and that, too, without very materially changing the marked characteristics of the several breeds.

Since the success of the exhibition of polled cattle at Paris, at which the highest prizes were carried off by specimens of this class, there has seemed a possibility of an undue excitement in this direction, and that polled cattle for breeding purposes might reach extravagant prices; and there is, doubtless, much inquiry for pure stock of these breeds, especially in Europe. But the fancy for the purest popular breeds is so firmly grounded in the minds of their admirers, that the process of removing the horns must necessarily be a long one.—*N. E. Farmer.*

The Jersey Cattle for Beef.

Those who are familiar with this breed of cattle are aware of the fact, that for size the Jerseys bred in this country generally excel in size those which are imported; but the quality of the beef, in comparison with the Short-horn or other breeds, has been but little discussed in the agricultural papers. Mr. C. T. Alvord, of Vermont, well-known as an authority in dairy matters, in a recent communication to the *American Cultivator*, gives some facts which would go to advance the idea of the value of the Jerseys in a direction not before claimed for them. Mr. A. says:

"It is just thirty years since the first Jerseys were brought to this country. They are making a wonderful change in our dairy interests, and the good results are destined to become more apparent in the coming years."

"Although the general looks of the average Jersey cow are against her for making beef of a desirable quality, or at any reasonable cost, yet my experience has been more favorable to her value for beef than for milk and butter. At different times I have fattened two full-blood and one half-blood Jersey cows. These cows all had calves in the spring and were milked till fall. After they were dry I commenced feeding them Swedish turnips once a day, and after a few weeks fed them Indian meal once a day in addition to the turnips. The average daily feed of these cows while they were being fattened was about one-half bushel of turnips and four quarts of meal, with what hay they would eat. The average time of fattening these cows would not exceed ten weeks.

"The first full-blooded cow that I killed dressed: meat, 500 pounds; rough tallow, 60 pounds; hide, 68 pounds; total, 628 pounds. The second cow, full-blood, dressed: meat, 550 pounds; rough tallow, 86 pounds; hide, 64 pounds; total, 700 pounds. The last cow, half-blood Jersey, dressed: meat, 614 pounds; rough tallow, 48 pounds; hide, 76 pounds; total, 740 pounds. The meat of all these cows was of a superior quality, juicy, tender, and the fat well mixed in with the meat. In fact, there was too much fat in the meat to suit the tastes of most people. The two full-blood cows dressed about fifty pounds each more than good judges estimated them to before being killed, in consequence of their being fatter than outward appearances indicated. Several persons who saw the beef of the second cow that I killed pronounced it to be the fattest beef that they had ever seen in this place.

"I think, taking into consideration the condition of these cows when I commenced fattening them, and the amount of feed given them, that I never made better or cheaper beef from any other breed of cattle."

More Oxen Needed.

The *Maine Farmer* sees with regret the disuse of oxen and the diminution in their number. It admits that horses perform the work better and quicker than oxen; that they are more fit for use on roads or to encounter bad weather; that they suffer less from extraordinary exertion and from heat than oxen, and that they are adapted to many purposes for which oxen are unfit.

But it says, is not the argument in favor of oxen equally forcible? Oxen cost less at first, and the annual expense for harness, fariery and food is much less for oxen than for the horse; they perform more labor for their annual cost of keeping; they increase in value from the beginning of working; are worth more at last than at the first, going at last to the butcher at a price varying from one to two hundred dollars per yoke, while the skin of the dead horse is all that is worth anything. There are some ox-teams that will do as much work on the farm as horses, team for team; but we are aware that such instances are rare. On the contrary, as a general rule, horses will perform about twice as much work on the farm as oxen. English farmers, after carefully experimenting, have arrived at the conclusion that while it takes eight oxen to do the work of five horses, the balance of cost would be from twelve to fifteen dollars per annum in favor of ox-teams. In Scotland, on a large farm, where several teams of both kinds were used, three oxen were found to be equal to two horses for all kinds of farm work, and the balance in the cost of keeping, &c., for twelve years, at the rate of three oxen to two horses, in four teams, amounted to two hundred and thirty dollars in favor of the oxen.

All this goes to prove that for actual labor on the farm, there is a decided advantage in using oxen; we are speaking now more particularly of the farmers of New England; for in the cultivation of the immense fields of the South and West, horse-labor is indispensable, and on all farms situated remote from the markets. The horse will withstand the heat better than the ox, but in our mixed husbandry there is no occasion for using either horses or oxen constantly during the heated term. The low and even temperature of England does not interfere with working oxen during the whole season, except in rare cases. We have not the least doubt that if the small farmer with from fifty to one hundred acres of land, who finds it necessary to keep more than one horse to do his work, would keep a yoke of oxen, the business of the farm would go on fully as well as though he kept two horses, while the profit would be much more satisfactory. We recognize the fact that the horse is the noblest and most useful of all our domes-

tic animals; but we must speak a word in behalf of the patient ox, which, with less danger from disease or accident, with less expense of food and harness, and with the certainty that his value is increasing with age, should, in our judgment, in ordinary farm work, take the place of the horse.

We have said that one of the chief objections to the use of oxen on the farm is that they are slow, but is there no remedy for this? The unbroken, unworked steer or ox walks about as fast as the horse, and why should he change his gait when broken to labor, and not the horse? Is it not the difference in their treatment that accounts for part of the difference in their walking, after being broken to labor? The steer is broken to the yoke before his strength is matured, and compelled to labor day after day, and to draw burdens beyond his strength, and which he is unable to draw at all except at a snail's pace; or he is put to labor with older cattle, which have been broken down by the same treatment, and he is obliged to adapt his walking gait to theirs. The powers of the colt are rarely tested until he arrives at comparative maturity; light loads, easy carriages and a rapid gait falls to his lot, and his whole treatment is as well calculated to make him active as that of the steer is to make him slow. By breaking the steer to a livelier step, by not loading him so heavily as to render such a step impossible, and by accustoming him to activity in his movements so as to form a habit, a thing every cattle-trainer knows to be entirely practicable, the complaint of slowness in oxen would not so generally be raised as an objection to their use upon the farm.

The Horse's Punishment.

A horse appreciates a comfortable-fitting harness as much as he does a properly-fitted shoe. The latter, when set too tight, or with a nail driven into or too near the sensitive tissues, produces positive lameness. Under this condition of things he is promptly taken to the shop for relief. But he may suffer nearly or quite as much from the chafing of a badly-fitted collar or a narrow belly-band, drawn too tight. Or from a check-rein shortened up so as to form of itself one of the severest of punishments. Either of these conditions will produce restiveness in the dullest brute, and in the case of an animal of nervous temperament, and having a thin sensitive skin, he is liable to become frantic,—the obtuse owner or driver seldom appreciating the origin of the difficulty.

No greater evidence can be advanced to establish a horse's entire submissiveness than his willingness to pull against the collar with a portion of the breast surface denuded of its skin, and showing the highest possible state of sensibility. The average horse will do this, shrinking at every step. A horse learns to dread the approach of the master or driver, with harness in hand, if this has previously been a source of torment, or even discomfort. A horse properly handled for a period, in a well-fitted harness, then chancing to fall into the hands of a bungler, will at once detect the undue tightness or looseness of the strap, and will not settle down to his usual gait, contentedly, while the irregularity remains. A spirited horse may, under such an irritating influence, do from downright fear what may be wrongly charged as viciousness. Heavy strokes of the whip may fall upon the irritated beast only to be followed by evil results.

Among the every-day torments to which the horse is subjected, we will enumerate the following: 1st. Abraded breast. 2d. Inflamed back from defective saddle or harness pad. 3d. Sore mouth from a too tight gag-rein, a severe bit, or both. 4th. A sore tail from too tight or illy-made crupper. 5th. An abrasion under the body, caused by a too tight or badly-fitted belly band. 6th. Irritation of the eyes from blinders being strapped too close together, or on the other hand are allowed to swing around, first striking one eye and then the other. 7th. Ears chafed by the brow band being placed too high, or by metallic rosettes with a sharp outer rim, the base of the ear pressing across this at every motion. 8th. The excessive fatigue of all the structures of the neck under the influence of the bearing rein. The bearing rein, if made taut, and kept so for any considerable length of time, is a source of great discomfort to all horses, and an insufferable torment to many. A taut rein can be used with entire propriety on horses of fine easy up-carriage, especially while in motion; but if the muscles and bony structure of the neck extend forward horizontally from an upright shoulder, rather than striking out from a slanting shoulder, then the most intense suffering will be inflicted by straining the neck up to an angle entirely unnatural to the animal, especially if this strain be long kept up. To strain a culprit up by thumbs, till only his toes touch the ground, is certainly one of the severest admissible punishments that can be inflicted upon mortal, and the check rein is undoubtedly akin to it, in its extreme application.—*Williamettee Farmer.*

Weaning Colts.

A little skimmed milk may be given with advantage at this period, especially if the colt is not in good condition; but clean, sound oats, ground or unground, constitute the best of all grain foods for the colt. We prefer to have them ground; and, as cold weather approaches, we would add about one-fourth in weight of corn-meal, which helps to lay on fat and keeps up the animal heat. A little oil-meal—say a pint a day—may also profitably be given with the oats for a few months after weaning. Don't be afraid of feeding too liberally. More colts are injured the first six months after weaning by too scanty an allowance of food than from the opposite extreme. By all means see that the colt has ample opportunity to romp and play. If you keep him up in a close box and feed him highly you will ruin him; but let him have a chance to race through the fields or pasture—and grass, by the way, is the best of all foods for the colt—and then there will be little danger of injury from overfeeding.—*National Live-Stock Journal.*

Care of Rams.

A correspondent of the *Country Gentleman* says:

In relation to the question as to what form of ram to select, I will say that it is by far too common a custom for breeders to select the largest size for stock animals, and pay too little attention to the form. A large overgrown animal rarely makes a good stock-getter. His lambs are too often weak in constitution, and far more liable to disease than the lambs of smaller sires. I would much rather choose a compact, closely knit frame (not too short,) with a prominent expressive eye, broad shoulders and hips, with ribs well arched from the back-bone, and wide between the thighs, than an animal 25 per cent. heavier, with a mullet head, sunken eye and light shoulders. In short, the compact ram gets lambs stronger at birth, and marks them after himself far more than the overgrown, loosely-built one, beside being an easier keeper and more hardy.

As to the question how the ram shall be kept: It is a law of nature that both sire and dam must be in healthy, vigorous condition, in order to insure strong, healthy offspring. Therefore we cannot expect a ram that has been confined in some close, ill-ventilated stable, with little or no exercise, whose whole system is impregnated with the foul gases that he has inhaled, and whose muscular tissue is overcharged with fat, to get strong lambs. Neither can a ram that has been pastured in some barn or hog-yard, with scarcely anything but weeds to subsist upon, and a clog fastened to his leg, be expected to be in condition to produce fine lambs. While many farmers fully realize the necessity of preparing the horse and the bull for use in the breeding season, they seem to think that no preparation is needed for the ram, and all that is necessary is to take the ram from the yard or stable, turn him with the ewes, and pay no more attention to him. Even if he has been previously fed a little grain, they think he needs none now. I have known breeders to pay a large price for a pure-bred ram which had been well cared for by his previous owner; then bring him home, and turn him with their ewes; let him run for a few weeks without grain or shelter from storms, and then let a neighbor take him to use, and perhaps a second and a third neighbor, until the ram was reduced to a skeleton. The result was a dead ram before spring, and a poor, weak lot of lambs. The owner and all the neighbors were ready to curse the breed and call the breeder a swindler.

Stock rams should have a good, well-fenced, well-watered and shaded pasture to run in during the summer, and if of Cotswold, Lincoln or Leicester blood, should be sheltered during long storms, for they cannot endure wet weather. A few weeks previous to the time that they are wanted for use, they should receive from a pint to a quart of oats and corn, equal parts, per day, according to the breed. A quart for a Cotswold is about equal to a pint for a Merino, and two-thirds that quantity for a Shropshire or a Hampshire. This quantity, together with a few roots, they should have daily during the time they are serving ewes and during the winter. The ram should be allowed with the ewes only about two hours per day; then put in his stable or yard, with one or two other sheep for company. The trouble is trifling when the ram is broken to lead, as all rams should be. He should be so tame that he can be caught when wanted. By taking this course, the ewes will be served in half the time, and twice as many ewes can be served by the same ram without injuring him. All this trouble will be ten times repaid in the stronger, better-developed lambs when the yeaning season arrives.

The Shepherd Dog.

Dr. N. H. Parren writes as follows, on this useful animal, to *The Ruralist:*

Having so often complied with requests to write something about shepherd dogs, for this, that and the other paper, the subject has with me well nigh become exhausted, and it is now a matter of some little difficulty to again write on the same without touching on matters of which I have said something before. Being possessed of a strong passion for good dogs of all breeds, but especially so for the shepherd dog, I may be excused for being a little loud in his praise. There is no animal employed in agricultural pursuits which evinces so much sagacity as this dog, or by whose services the burdens of the sheep-farmer or drover are so greatly lessened. Indeed, a well-trained shepherd dog is worth more than ten tolerably lazy hired men, as he will accomplish more in gathering or driving a large flock of sheep or herd of cattle.

If we may give credit to the position which seems to have passed current through a number of books, this dog, like certain ministers of state, and generals, is a heaven-born genius, coming into this world fully qualified by nature for his business, and requiring very little training. The truth is that this dog has a strong natural instinct or predisposition to keeping or watching and preserving anything that comes under his observation. His sagacity, docility, and powerful attachment to home and to his master and protector, aided by his grand natural propensity, render the teaching him his duty an easy and pleasant task. On the continent of Europe, the shepherd dogs are not taught to chase, worry or bite the sheep, but are allowed to display, on all occasions, their natural kindness and affection to their charge; in consequence of which, the sheep, far from having any fear or apprehension of harm from the dogs which guard them, ever look upon them as natural associates and protectors, and fly towards them on every occasion of alarm. The shepherd dog is said to have been preserved in its original purity of species in the Highlands of Scotland and in the most uncultivated parts of Wales. In fact, such is most likely to be the case in all open countries, where sheep husbandry necessarily predominates, and where this dog is of the greatest account, his services being indispensable, and the trust reposed in him so great. He is truly a wonder of his species; with an appearance of somnolency, of heaviness and indolence, he is all alive, and active, and energetic, when

inspired by a sense of duty, or directed by the commands of his master, the slightest indications of which are sufficient for his ready comprehension. He is the most contented of all the canine race, the least given to wandering, or attention to strange pursuits,—all his faculties appearing completely absorbed in that employment to which he is destined. Without the external signs of robustness, he is able to endure the greatest hardships, defying hunger, wet and cold, and the shivering blasts of winter, in the wilderness, upon the mountains, and in those dreary wilds where, if the shepherd ventures, he treads with cautious and perilous steps. When employed in the farm-yard or by drovers, these dogs display the same sagacity, but become more fierce owing to the nature of their employment, driving the cattle, constantly urging them on and nipping them with the teeth when necessary.

The Scotch shepherd dog, or so-called Collie, to which these lines especially apply, is a dog of medium size, and of various colors, such as black and pale tan; black, tan and white; sandy brown, with or without white markings; various shades of red or fawn, with or without white markings. Entire black ones are rare, and then of questionable purity. There are rough and smooth-haired Collies, the former generally carrying off the palm for beauty; but as far as build, shape, color and usefulness are concerned, the two are exactly alike. There is a bob-tailed variety, of coarser and stouter build than the Scotch Collie, and is as good a dog for working, although sometimes a little severe on stock.

There exists no better proof of the purity of breed in a dog, than its requiring but little breaking. If proper attention be paid to breeding, but comparatively little trouble will be required in training. This is a maxim which holds good in bringing up every species of the dog. The education of a dog, for whatever purpose he is intended, ought to commence at an early age. The best time to begin the training of a shepherd pup is about the sixth or eighth month of its age. When a year old or more, before the training is begun, he will never amount to much. The dog should, by repeated lessons, be made familiar with the business he has to perform; and when the voice fails to procure the requisite obedience, the whip must produce what more gentle means are unable to effect. Do not whip him before you are satisfied whether he understands your order, or whether he disobeys from unwillingness. All orders should be accompanied by a motion with the hand in the direction you wish him to go. A few whippings are necessary in the course of training any pup; but the whippings should be few and far between, and always with moderation, and with a feeling of due regard to humanity; otherwise your pup is apt to become dogged, morose, sullen, and a coward. In training a dog, a great object is to ascertain his temper, some requiring severe and frequent correction, while with others the mildest treatment, and even encouragement, is absolutely necessary. Patience is a great requisite in the character of a dog-breaker; many dogs, who would have been otherwise excellent, have been frequently ruined by the brutal and ignorant treatment they have experienced. Every one has his own caprice or fancy about the necessary qualities of his dog, and we repeatedly fall in with persons possessing, in their own estimation, the very best dog in America. A dog is far more likely to become a first-rate one by being made a companion of, rating and shaming him when he commits a fault, than by being kept entirely confined till taken into the field, and there flogged into obedience. When punishment is necessary, (and it should be avoided as much as possible,) the dog should never be kicked, for by such treatment they very frequently meet with irreparable injuries. It should always, therefore, be done with a whip or switch. To do this, and to avoid the dog's getting loose and offering to bite, he should be held tightly by his head between your legs, by which means he is properly secured, affording at the same time a full command of his back, without the risk of injuring him in any tender part. A plurality of teachers should, if possible, be avoided,—one instructor being amply sufficient, and the dog more likely to become a good one, than by being placed under the discipline of a number of breakers, whose methods may vary materially.

If the young dog is inclined to drive too fast, the best way is to have a long string attached to him, by which to check and correct him. It will be necessary to talk to him, and to use the same words at the time he is corrected, so that he may learn to know what is meant; and if the dog possesses ordinary sense and is not a mongrel, it will not take long to break him of the habit of driving too fast. Most young shepherd dogs make a great noise, bustle about in an impatient manner, or run fiercely at the sheep, biting their ears and legs, and often overdo their work. Great harm may accrue to sheep by allowing the dog to work thus. Whenever sheep hear a dog bark that is accustomed to hound them every day, they will instantly start from their grazing, gather together, and run to the farthest fence, and a good while will elapse before they will settle again. With ewes it is very apt to cause abortion; and with lambs, after they are weaned, it is apt to overheat them, induce palpitation, and a considerable time will elapse before they recover their natural breathing. A well-trained dog, although left alone for hours, always keeps the flock within the limits of a made road, even although there are no fences; he watches every avenue and cross-path that leads from it, where he posts himself until they are all past, threatening every one who attempts to move that way; and should any of them escape, he pursues them, and will force them back to their companions without injuring them.

BUTTER AND OLEOMARGARINE.—The chief of the bureau of statistics of the Treasury Department has sent a communication to President Parker, of the N. Y. Produce Exchange, informing him that there were returned to the bureau, as exported from New York for the year ended June 30, 1880, 31,061,610 lbs. of butter, valued at $5,179,071, as against 1,983,330 lbs. oleomargarine, valued at $2,581,317.

The Poultry Yard.

Poultry Display at the Baltimore County Show.

By G. O. Brown, Montvue Poultry Yards, Brooklandville, Md.

There was an increase in the number of exhibits over that of last year, and the birds were also of superior quality. In numbers the Light Brahmas took the lead—there being over thirty entries. Old fowls being in full moult, did not make a very presentable appearance. Chicks, for the time of year, looked well. The Light Brahma chicks were a strong class, and competition close, though all the awards went, and were well merited, to chicks exhibited by Dr. Geo. H. Cairnes, as also a special for first and second best L. B. pullets. The next class (in quantity) were Plymouth Rocks. Small competition in fowls, but winners were good birds. The chicks were, especially the prize winners, unusually fine specimens, and so remarked by the judge (A. M. Halsted, of Rye, N. Y.) Brown Leghorns came next, and were a much better class than last year. Whites were not so strong, but the winners were excellent specimens. Cochins were few in numbers, and only the Whites were worthy of notice. Dominiques, a small class; but premium birds good ones. The Houdans, with a single exception, were finely-bred birds. The Polish class had the entire family represented by fair specimens. Sultans attracted as much attention and admiration as usual. A few fine Crevecœurs were shown. Games had a good many representatives, but only the first and second prize Black Reds were really first-class specimens of this class, and a number exhibited were disqualified by the judge. Bantams were not as numerous as last season, but those on show were good specimens. Ducks, geese and turkeys were not as well represented as they should have been. The display of pigeons, though few, made up in quality. A "Centennial Incubator," exhibited in operation by Mr. Brown, attracted considerable attention, and caused a multitude of queer questions to be hourly propounded. One lady was informed it hatched the eggs in about twenty days, and she soon returned with her husband to show him the machine that hatched chickens in "twenty minutes." She had made a slight mistake as regards the time, but not as bad as a bewitching brunette, who came with four eggs in her hand and wanted them hatched "*while she waited.*" I thought at first she was joking, but a glance at her black eyes showed me she was sincere; and upon being informed it took at least twenty days, her face exhibited how sadly she was disappointed, as she remarked: "Humph! a hen can do as well as that machine."

Hints on Poultry.

I have ever held that poultry-raisers for market, exhibition or breeding, should make one or two breeds a specialty; and, having tested nearly all, I am forced to believe that there are but two kinds of fowls that pay successfully for farmers to raise—Brahmas and Cochins; and of the two I would prefer the Brahmas for profit. At the age of two and a half to three and a half months they are fully as large as full-grown common barn-yard fowls, with flesh juicy and tender as the taste could wish or desire. In winter they lay more eggs than almost any other breed that you can procure, and during the summer they are as prolific layers as any breed, not excepting Leghorns, Plymouth Rocks, or Black Spanish, Houdans, or any small breeds; and for market I think the Brahmas or Cochins are far ahead of the small breeds. Farmers can sell their fowls by the pound, not by the dozen; and I hold that it costs no more to raise a dozen chickens that will weigh eighty-four pounds than it does to raise a dozen that will weigh thirty-six pounds. The same in regard to turkeys, ducks and geese. It costs no more comparatively to raise large fowls than it does to raise small ones. Some say it don't pay to raise the large fowls; it costs too much to commence with. Well, stop and think and reason a little. You can buy a trio of chicks, Brahmas, say for $5, to start with to raise fowls for market. You can sell a dozen of large chickens in market for $4, where you can sell a dozen of common dunghills for $1.50; so you can see there is $2.50 difference on one dozen chickens. You can see that you could soon pay for a trio of Asiatic chicks. The same with turkeys, ducks and geese. I say it pays to keep good fowls on the farm, as well as elsewhere. The cost of henneries, or keeping the same, is small, for they have the range of the farm lots and fields; besides that, we sow some buckwheat and Hungarian. I think Hungarian the best for fowls. In addition to the advantages of the range, our favorites should be fed a little corn in the evening, and morning a little oats should be fed. The success in poultry-raising depends entirely on the care and attention bestowed upon them, and their health on the cleanliness of their houses and roosting-places.—*Cor. Western Agriculturist.*

Established Rules for Successful Poultry-Raising.

In raising poultry or stock it should be the aim of every one to keep it healthy and improve it. You can do it very easily by adopting some systematic rules. These may be summed up in brief as follows:

1. Construct your house good and warm, so as to avoid damp floors and afford a flood of sunlight. Sunshine is better than medicine.

2. Provide a dusting and scratching place, where you can bury wheat or corn, and thus induce the fowls to take needful exercise.

3. Provide yourself with some good healthy chickens, none to be over three or four years old, giving one cock to every twelve hens.

4. Give plenty of fresh air at all times of the year, especially in summer.

5. Give plenty of fresh water daily, and never allow the fowls to go thirsty.

6. Feed them systematically, two or three times a day, and scatter the food, so that they can't eat too fast or without proper exercise.

Do not feed more than they will eat up clean, or they will get tired of that kind of feed.

7. Give them a variety of both dry and cooked food. A mixture of cooked meal and vegetables is an excellent thing for their morning meal.

8. Give soft feed in the morning, and the whole grain at night, except a little wheat or cracked corn placed in the scratching-place to give them exercise during the day.

9. Above all things keep the hen-house clean and well ventilated.

10. Do not crowd too many in one house. If you do, look out for disease.

11. Use carbolic powder in the dusting bins occasionally to destroy lice.

12. Wash your roosts and bottom of laying-nests with whitewash once a week in summer and once a month in winter.

13. Let the old and young have as large a range as possible—the larger the better.

14. Don't breed too many kinds of fowls at the same time, unless you are going into the business. Three or four will give you your hands full.

15. Introduce new blood into your stock every year or so, by either buying a cockerel or sittings of eggs from some reliable breeder.

16. In buying birds or eggs, go to some reliable breeder who has his reputation at stake. You may have to pay a little more for birds, but you can depend on what you get. Culls are not cheap at any price.

17. Save the best birds for next year's breeding, and send the others to market. In shipping fancy poultry to market send it dressed.

Profit from Hens.

We have been proving from facts drawn from experience during a period of about forty years that it is profitable to keep hens for the eggs they will produce. But in order to make a profit by keeping hens a person must understand the business and attend to it. The reason why so many farmers complain of the ravages that the hens make in the garden in summer and in the barn in winter, is because they take no care of them and furnish no house in which it is suitable for them to live. If the pigs should run at large, like the hens, they would be pests in the garden and corn crib as well as hens. Both need confinement in suitable enclosures, and then, if well fed and cared for, they will be a source of profit to their owners. A correspondent of the *Homestead* writes as follows on the profit of hens:

"Poultry-keeping is properly a branch of farming, and has many times been proved to be more profitable than any other stock a farmer can keep. The production of eggs is very profitable, if properly managed. By raising early chicks and hatching them out in March and April, the pullets will commence to lay about the first of October; and by providing comfortable quarters in winter, with the right kind of feed, will lay all winter. Any respectable hen will lay one hundred and fifty eggs in a year. A pullet beginning to lay October 1, will lay six dozen eggs by the first of February, which will bring thirty-five cents per dozen anywhere in Connecticut. Before she is eighteen months old she will lay six dozen more at fifteen cents per dozen, amounting to three dollars altogether. The feed for the fowl for eighteen months will not cost one dollar, leaving a net profit of two dollars and a carcass worth from seventy-five cents to one dollar, besides."

Bee Culture.

What is a Nucleus?

A nucleus is a small colony of bees in a small hive—for instance: two frames, one of brood and one of honey and about a pint of bees.

Unless queens are raised for sale, the nucleus hive need be nothing more than the ordinary hive used in the apiary, contracted by a division or partition board, so as to allow only a chamber large enough for two, three or four frames. We must have as many of these hives ready as we have queen cells. Now, to populate these hives or nuclei, we go to different hives of the apiary for our frames of brood and for the bees. We must always choose our strongest colonies for that purpose. We blow a few whiffs of smoke into the entrance of the hive we intend to take the frames of combs and bees from for one of the nuclei, and open the hive and hunt for the queen, and when the comb she is on is found, we place it in a little box that we have for that purpose; an empty hive will do as well. This is to be certain that the queen is not among the bees we put in the nucleus, as this would take the queen from where she is most needed, and would lead to the destruction of our queen cell. After we have found the queen, we take our frame of capped brood and one containing honey, and place them with all adhering bees in the nucleus. As many of the old bees that we have placed in the nucleus will return to the hive they came from, we shake off into the nucleus the bees of two more frames, so as to make it sure that we will have enough bees in it to keep up the proper temperature. Now we continue the same operation until we have given each nucleus two or three frames with bees as directed above. After we have done this to all our nuclei, and every one is placed on the stand prepared for them, which ought to be in a shady place, we are ready to insert in each one a queen cell. The next day we go to the hive which has the queen cells, and with a sharp thin-bladed knife we cut out all the queen cells but one; but if we should need more queen cells, we cut all the cells out and insert another frame of brood from our choice queen as directed before, so as to have the bees to rear some more cells, and continue inserting a new frame of eggs as long as we may need queen cells after cutting the cells out for our nuclei. As this colony which is rearing queens is queenless and losing bees daily, it is necessary to give it, occasionally, a frame of hatching brood, which will keep it in good condition until it gets a laying queen; but it is best to use another colony to build cells after the second time, as I have noticed that bees seem to get discouraged after building cells twice, and often they fail to build any after the second time.

In cutting the cells, leave, when practicable, about one-half or three-quarters of an inch of square comb attached to them and place them in a little covered box, to protect them, until ready to insert them into the nuclei, from the hot sun or cool air, and from robber-bees which may be trying to steal the honey that may have been running in the operation of cutting the cells out.

To insert the queen cells, giving one to each nucleus, we make a cut in the brood frame of the nucleus, just large enough to receive the cell and to prevent compressing the cell; for if the cell is pressed or dented, if it hatches a queen at all she will be crippled. An open space must be left below the cell. We must fit the cells as nicely and securely as possible, or the bees may tumble them down in the bottom of the hive.

It very often happens that two or more cells are built so close together that it is impossible to separate them without breaking one or both. In this case, we insert the whole, and by looking often to them we may find the first queen while she is biting her way out, or soon enough after she is out to save the others. In three or four days after the cells are inserted, if we have done these operations in proper time, nearly all the queens will be hatched, which can be ascertained by looking at the cells. In case the young queen is not seen, if the cell is bitten open on the side near its base, it has been destroyed and another one must be inserted; but if it is open at the tip end, and especially if the cap is hanging to it, we may rest assured that the queen has just emerged from it.

From a week to ten days after the queens are hatched, they will have become fertilized and will be laying, which is readily determined by examining the cells for eggs; then we will be ready whenever the time comes for our divisions or artificial swarms, which will be the subject of my next article.

As the bees are liable to leave with the virgin queen on her excursion to meet the drone, whenever they have no unsealed brood, it would be well, to prevent this, to insert a piece of comb containing eggs and young larvæ in each nucleus, two or three days after the queens are hatched; and also, if the queen should get lost in her bridal tour, the bees will have materials to form another, should it escape our notice. If queens are raised for the market, it is preferable to use small hives as nuclei, to contain two or three frames of the same size used in the apiary, and about the same directions followed as given above.—*Correspondent N. O. Times.*

How can we Improve our Bees?—How can we rear the best "business bees?" Only by producing the best queens and best drones possible, from the best colonies we have or can procure. We must take as much pains in rearing queens and drones as the breeders of different kinds of fine stock do in the selection of choice animals to breed from. I confidently expect, in a few years, to see strains of bees far superior to any we now have. The main point is in breeding queens. We cannot get the best queens from larvæ one day or one hour old, for then they will get some worker food. They must have royal food from the time they hatch.

The Dairy.

Dairying and Fertility.

To what Extent does Dairy-Farming Exhaust the Soil?

The editor of the *New England Farmer* thinks with the farmers of his section, which he says must yet come into greater prominence in the future, as dairy States, than they have yet assumed, it is a matter which should be frequently canvassed and one upon which they should have a firm opinion, as to the effect dairying has upon the fertility of the dairy farm, for dairymen cannot afford to pursue a course of farming which has a tendency to lessen the capacity of production; and if their farms are not being kept up by the methods they are pursuing, it is necessary that they know it at once and change their hand.

His views are applicable generally. He proceeds:

It is well understood that the mere act of grazing milch cows upon a good pasture, and feeding them from the hay produced from the meadows of the same farm on which they are grazed, is, of itself, an exhausting system. It is far more so than that of grazing and feeding steers or sheep. Given a cow that will yield 4,000 lbs. of milk per annum, she will, during the time she is at pasture for the season, remove from the soil not far from twenty-four pounds of mineral constituents; and given a steer, which during the same time at pasture as the cow, gains in live weight 300 pounds; his extra flesh and growth put on will contain only one-fourth as much mineral matter as the cow will carry off in her milk alone, to say nothing of any increase in weight. But of other important matters in the milk, which are a loss to the fertility of the soil, the nitrogenous portion, caseine, will, in 4,000 pounds of milk, amount to 256 pounds; while the 300 pounds of flesh added to the growth of the steer will contain but forty-eight pounds of nitrogen, or less than one-fifth as much as the milk of the cow. Now further: If the waste in the system of the cow is supposed to be equal to that of the waste of the steer, the cow will take from the soil, in mineral matters, four times, and in albuminous matters and nitrogen five times as much as the steer. This comparison of the feeding of the two animals, is, we are aware, not a new one, but it presents the exhausting system of dairying upon the fertility of the soil in a strong and very correct way; and it will be seen from it that when milk is sold, the keeping of cows is much more depleting to the land than when steers are grazed upon it for beef. True, it has frequently been said that where there is a ready sale for milk, milk farming is the most profitable line of dairying that can be followed; from which must be understood that it returns more ready cash and does away with much of the labor and expense attendant upon butter and cheese making. But to be profitable in the true sense, in that the capacity of the farm is kept up, much of the money received from the sale of milk must be returned to the land in the form of purchased fertilizers. In no other way can milk

selling be regarded as a profitable line of dairy farming.

Practice and experience long ago decided the matter, that butter (a product of cream, leaving the skimmed milk for other purposes) brought to the dairyman more money than the whole milk made into cheese. From this fact, until the factory system of cheese manufacture so brought up its character as to raise the price of cheese in our market, and create for it a large foreign demand, butter alone formed four-fifths of the marketable product of dairy farming as carried on in this country; and perhaps from this fact came the general belief in the profitableness of the butter dairy. Now butter, as a product, takes no valuable elements from the soil; its constituents are largely derived from the atmosphere, chief of which is pure carbon, and no mineral matters are found in it.

In connection with the butter dairy, and the feeding of skimmed milk and buttermilk to pigs, the mineral elements are replaced upon the land in a concentrated form and add directly to its fertility; so that, by this system, the productive capacity of the soil may not only be kept without deterioration—it may be actually increased. The pig, of all farm animals, has the least weight of bone in proportion to weight of carcass, and on this account it is better for the land to feed the refuse milk to pigs; for, by this course, the least phosphate of lime is sold. It has been regarded fair to say that sixteen pounds of skimmed milk will make one pound of dressed pork on pigs from four weeks to six months old, and from this source an income of $20 per cow, for the season, may be obtained. Pig manure made from refuse milk is very rich in all the valuable elements of a fertilizer, and, if abundant absorbents are used, it will, when applied to the land, cause little real waste of soil fertility. Hence every fact shows that the best system of dairying, to preserve the fertility of the soil, is a well-conducted system of butter making.

Well, what of cheese making? The farmer who makes a specialty of keeping cows for a cheese factory, carries his milk to the factory and brings back only the whey. This contains no mineral matters, except in the very small amount of caseine and albumen which may have floated off in the whey. Whey, as is well understood, possesses very little manurial value; its chief office is to yield animal heat and produce fat. The caseine of the curd contains nearly all the mineral matter, and this is sold in the cheese; so that by this system the fertility of the soil is being drawn upon constantly. True, an understanding feeder can make a profitable use of whey, as a food, by mixing with it feeding stuffs rich in albuminoids, as oil-cake meal, oat and barley meal; or he may largely feed these last-named substances to his cows, and thereby obtain a better manure; but, unless he does this, cheese-dairying, as a profitable branch of farming, is but little, if any, better than selling milk, so far as regards the loss to the fertility of the soil is concerned. Better feed and the use of bone fertilizers upon the land will supply the waste. Concerning the last, Prof. Voelcker, of England, says: "In the reclamation of wastes, and in the restoration of fertility to the worn-out pasture lands, which have been exhausted by the constant removal of milk, cheese, etc., from their surface, bone manure has been very beneficial."

From what has been said about the loss to the soil occasioned by the making and selling of butter and cheese, it will be readily understood that where milk is sold, all the mineral and nitrogenous constituents which it contains are lost to the soil. These elements have been estimated at fully two-thirds of all the cow consumes; and although this looks to be a large loss, it is without doubt correct. Prof. J. F. W. Johnson says: "Every forty gallons of milk contains one pound of bone earth, besides other phosphates. Estimating a cow to yield 750 gallons of milk per year, it will require 19 pounds of phosphate, equivalent to 30 pounds of bone dust. If the calf is sold off, we may assume there is a loss of 20 pounds of bone, and the waste of phosphates in the urine equals four pounds. And thus, for every cow a dairy farm maintains, it will lose of earthy phosphates as much as is contained in 56 pounds of bone dust." This shows what must be returned to the soil, where milk is sold, if complete impoverishment of the land would be guarded against.

We are well aware this presentation of the subject is not a new one, but we have deemed a recapitulation of these facts desirable on account of many recent statements to the effect that "the selling of milk is the most profitable branch of farming, where cows are kept." It does call for a less outlay of care, work and money, without doubt; but unless purchased manures are largely made use of, there will be a constant drain upon the reserved fertility of the farm. This provided for, and dairying is profitable in this order: 1st, butter making; 2d, cheese manufacture; 3d, selling of milk.

Dairying and Business Prosperity.

Only progressive dairying will really pay, as it is only progressive business of any sort that pays. Intelligence and enterprise must go with it. Dairying has made great progress during the last two decades. 3,000 lbs. of milk, 300 lbs. of cheese, or 120 lbs. of butter per cow, is no longer satisfactory or profitable; and a low grade of butter will only add to the unsatisfactory condition of that dairyman's finances. The present condition and prospect of the dairy markets has everything to encourage the progressive dairyman. He may feel assured that all his efforts to improve the character and condition of his herd will be amply remunerated. He will find it to his interest to look carefully into the individual character and product of every cow in his herd. Let him form a reasonable standard below which no cow must fall without being discarded; and then let him strive to raise this standard year by year. Let him study carefully everything in relation to feeding for milk production, and thus be sure that a low product is not the result of his low or improper feeding. Then, having provided for quality and quantity of milk, let him study everything relating to its manufacture into "gilt-edge" butter. Here he will find the knowledge of an expert exceedingly

profitable. The highest quality is not affected by competition—"There is always room at the top." In fact, there is no business which offers greater inducement to expert management than dairying; and the present is a most favorable time for every dairyman to improve his herd and his practice.

Our butter and cheese have conquered a market in England which we are not likely to lose for some time to come. English farmers find it more profitable to devote their dairies to the production of milk for city and town consumption, and this now appears to offer them a remunerative market. As for the production of butter or cheese, we, with our cheap lands and cheap food, can undersell them at a profit.

It also appears highly probable that, instead of having serious competitors in other parts of Europe, we are likely to export largely to many parts of the continent during the next decade.

The dairyman has, therefore, every reason to study all parts of his business with great confidence in the future.—*National Live-Stock Journal.*

Milk Flavor.

The flavor of milk comes from the feed, as does the milk itself. The main constituents of the feed form the milk, but its aroma also passes into the lacteal fluid, as witness the various scents and taints which so strongly manifest themselves in butter, such as the early grass of the season, the onion, carrots, turnips, etc. We have therefore the flavor of the dairy product at our discretion, and we know how much the market is influenced by it. It is the controlling element; texture, all, must yield to flavor; if this is good, success attends the sale; if bad, whether obtained from the feed, or the result of exposure, no other excellence can atone for it. And yet how little this is acted upon, who aims at flavor? There are those that do and succeed, commanding special prices; but the great majority continue to feed hay that is dry, hard, and flavorless, having lost the fine aroma it possessed in its early green state, and which, if made use of at the time, would have added one-third or one-half to the price of butter, which is not only now lost, but the value of the hay otherwise is lessened by its indigestibility, to say nothing of the abstraction of fertility which the land suffers from the ripening process. As to flavor, the best is that obtained from the early growth of the grasses when in their tenderest condition. This, in our latitude, covers a period of five or six weeks, beginning about the middle of May, and extending to the close of June. The next best is the young and tender growth of grasses, including the clovers, throughout the remainder of the season, particularly during the fall, before the frost has injured it. After that carrots, beets, and the various grains may be mentioned; also the pumpkin in its season, and the oil meals. Apples, if the best flavored were fed, would probably be a desirable addition; more might be mentioned. And here let me ask why the dairy product may not as well be artificially flavored as colored.

It will thus be seen that there is no lack of material. And fortunate it is that our best feed for flavor is our most extensive—grass; and this to a large extent when dried (or more properly cured) as well as when green; in other words the aroma of June can be retained in our winter feed—not so largely nor so strongly as in its early succulent stage; but the flavor from the earliest browsing is to many palates too strong, so that we get in the dried grass of middle June the most agreeable flavor for a large class of consumers. The curing, however, must be carefully and properly conducted. If too much exposed to the sun the aroma will be dissipated, this aided by the rains and dews. Dry air in the shade is the best, as when cured on the rails of the shades and mow; spread sufficiently thin so as to gradually dry, say some twelve or fifteen inches thick, and loosely put down. This may be repeated. Sometimes three and even four layers can be cured, each when dry enough removed and packed where wanted. To do this, cut the most forward grass, and cut a little earlier—the earlier the better will be the feed for cows in milk. Low, moist land will admit of this; so will the small or medium clover. Those that are favored with a patch of orchard grass have just what is wanted, as this is among the earliest of the grasses and will not admit of late standing, as the stalk gets hard. In this way considerable hay can be secured, hardly second to June feed itself. This is to be fed to milch cows when put up for winter, and butter is made, or in March, when the spring milking period commences. This has been the practice at the homestead.

As to the body of the hay to be secured, this requires other treatment. Thorough wilting, and freedom from all outside moisture, and then gathered and well pressed down so as to exclude the air, is held to preserve hay intact. It certainly does it when nearly dry, which is but a step removed from thorough wilting. The most, therefore, is to bring it to this point, which can be done, unless the spread is very heavy and the hay coarse, the day it is mowed, or more easily when cut the evening before. And now comes the trying point. If the sun is very hot, and the ground dry and hot, the grass cannot be sufficiently dried without losing considerable of its aroma; this if rather a thin spread and left undisturbed. What is wanted here is to keep the grass well stirred till the finer parts are well wilted and thrown into cock. In this heated condition it will dry with little loss of its substance, being self-protective. Removed to the barn and fed out in the winter it will be found green and fragrant. Where the cut grass lies thick it may be left longer on the spread, always on condition that it is kept well stirred, so that no part is long exposed to the sun. If the weather is good and the grass cut the preceding afternoon, it will be in condition to put up the day following the cutting. Be careful that the putting up does not extend too late in the afternoon, as the dew begins to fall (insensibly) hours before sunset. Much hay is injured in this way and the cause never suspected. Of course what injures the hay will not benefit its flavor.

In wet weather recourse must be had to the hay cap, and the work pushed at the favorable moments, always keeping in mind that it is bet-

ter to put up when but little wilted, the outside water off, than run the risk of spoiling by the rains. The best hay is made when a drought occurs, particularly when there is a haze, as is apt to be the case at such a time. This lessens the sharpness of the sun's rays, and with the dry, warm ground, hay can be made without any difficulty, the aroma and substance all saved and the color retained. In such a case it can be taken in without first putting into cock.

It is here understood that the grass is to be cut early, say about the middle of June, with orchard grass earlier, the small clover included. This retains the aroma which cannot be obtained later, as it is an early production, peculiar to June and what growth precedes it. There will be a trifle less hay, but its superior quality, particularly its flavor, will more than make up the lack in the increased excellence of the dairy products. It will also favor a second cutting, superior to the first in nutritive properties, of good flavor, though lacking the aroma of the first. If the ground is rich there will be considerable aftergrowth, which will afford feed to some extent second only to June herbage, leaving sufficient for winter protection. Such feed, including what is dried, will furnish almost sufficient for the dairy the year round, requiring only a little meal and the more succulent beets and carrots. But the hay, secured in the manner described, retains some of the succulent character of the grass, as will be seen in the condition of the cows, the milk, and the fecal discharges.

Let the dairymen aim, then, at flavor,—not only in pasture, but in the fall, winter and spring feed. By keeping the land enriched, it will push the grass so that there will be more or less fresh, tender herbage: thus avoiding the hard dry picking which results with poor land in drought. Another thing: we do not sufficiently and discriminatingly provide, as a supplement to pasture, green-cut feed. The early rye-field can hardly be estimated too highly,—affording a tender feed, excellent for milk and flavor, when no other green forage is available. If an early drought occur, as was the case the present season, this early green feed becomes a necessity, and is a most decided advantage. The drought has little effect upon rye, which gets its start from the winter moisture. Orchard grass, where it is on good land, follows close upon rye, is a rich feed, a strong grower, stands the drought well, and imparts a fine flavor to the milk. It is even more important to provide for the great midsummer drought which usually occurs in July and August. Corn, except perhaps the sweet variety, is most used, and is the poorest in nutriment. Yet it is watery and grateful as a feed in a dry time. Young clover then is excellent—second or third cuttings—and forms a good exchange with corn. The point is to secure a full fresh feed the whole season through, beginning early with rye, and ending with aftermath, which can be fed green almost up to winter, rich in nutriment and of good flavor.

Milk Advanced—The milk dealers in New York advanced the price of milk from 6 to 8 cents per quart, and it is expected it will go up to 10 cents per quart.

Milk and Milking.

It is a common practice to give the animal a feed before beginning to milk, so as to make the cow quiet and contented. But is this a good plan? Should not this important and delicate operation, over which the cow has so much control, receive the undivided attention of the animal as well as of the milker? We think it should, and that feeding at this time is bad practice. It is a matter of habit, anyhow, and the cow may as well be taught to attend solely to the milking as to eat. Of course she must be quiet and contented; but this should result from general treatment, and not from a coaxing feed.

Here is a bag full of milk which we propose to draw. The cow is healthy; the milk must be a perfetly natural product, and we must keep it so. Partly right—but not so fast! Is it certain that the milk is all right now? By no means; for the milk may be affected while still in the udder. If the food has been bad, the milk has suffered in quality; if the cow has had impure water to drink, it has beyond doubt directly injured the milk; if she has suffered from thirst, the milk will be less in quantity and in fats; if she has breathed foul air, whether in stable, yard, or pasture, it has affected the milk,—perhaps made it unfit for use. Do not forget this: carrion in the pasture, offensive fish manure in an adjoining field, or any sickening odor, even if from a distance, may have a very injurious effect. So may emanations from a manure-cellar, without the proper precautions of tight floors and ventilation. Pure air is as necessary to the making of good milk as pure water and pure food. If there has been insufficient shade in the pasture, and the animal has suffered from extreme heat, the milk will show it in a direct loss of the fat and sugar elements and an increase in undesirable albuminoids. It will be very poor milk. The same result follows worrying by a dog, fast driving from pasture, or any fright or harsh treatment. A rough, noisy, cow-boy, or a worthless cur, may directly diminish the butter yield from one-third to one-half, by injury to the milk yet within the cow, and the milker may hardly notice it.—*Land and Home.*

Jersey Butter in New York.

Three-quarters of the highest-priced butter used in New York and New England to-day is made from Jersey cows; it brings from forty to eighty cents per pound, and the demand is greater than the supply. The bulk of the butter dealers do not handle this, and it is not known to the newspaper market reports. As a rule, it goes once or twice a week directly from the dairy where it is made to the dwelling house, or club, or hotel, in which it is eaten; it has less than one-quarter of an ounce of salt to the pound, and thus none of the aromatic odors are lost.

It is made from the milk of healthy Jersey cows, who eat only the sweetest food, drink the purest water, and breathe the purest air; are carded and brushed and carefully bedded, and are always treated with gentleness. It is made

from milk which is immediately removed from the stable, though the stable is daily sprinkled with gypsum, and has no manure-cellar under or near it; it is made from cream which has risen in less than thirty-six hours, in clean tins and in a clean atmosphere; it is granulated or brined or washed in the churn, and worked with the greatest care; it is always kept cool, but never touched with ice, even on the table. The cow, the milk, the cream, the salt, the tins, the butter, are all kept clean, and in an odorless atmosphere.—*Country Gentleman.*

Horticulture.

The Principles of Pruning.

The art of pruning is one of the simplest as well as one of the most important operations connected with horticulture. Yet it is one that is frequently neglected, or ill-performed. The principal objects of pruning are to induce a vigorous and symmetrical growth, remove superfluous wood, and promote fruitfulness.

Whatever be the form of training adopted, there are some general principles underlying all pruning operations which should be observed to some extent, though no precise rule can be given for all cases. Briefly stated, these principles are: When the growth of wood is large and the tree or vine vigorous, more wood should generally be cut away than when the tendency to the production of wood is small. When there is a great tendency to the production of both wood and fruit, pruning of the wood and thinning of the fruit, or both, may be necessary in order to produce the best specimens. Shy bearing in trees is sometimes treated with root pruning. When an upright growth is desired, pruning of the lateral growth is required, and when a rounded, bushy growth is wanted, the main or central stem and longest laterals should be shortened in.

To prune successfully requires taste and good judgment, and much beauty and utility can be given to the form of a tree by proper pruning; but too much or unskillful pruning may be done with scarcely less injurious results than those that follow the neglect of the operation. Pruning at the wrong season, the removal of very large branches, and the neglect to prune, are responsible causes for the irregular-headed and unshapely trees which are found in far too many orchards.

In order to have well-shaped heads on trees, pruning and training should be commenced when the trees are quite young. Many trees are trained with too low heads, which much interfere with the work of cultivating an orchard. In garden culture, or for ornamental specimen trees on the lawn, low-headed, horizontally branched trees are sometimes desirable; but for orchard culture the heads should be high enough to allow a convenient approach in cultivating. Removing large limbs from trees is a practice much to be deprecated; but whenever necessary it should be done very carefully, and at the proper season, so that the wound will heal rapidly and the tree suffer the least loss of sap. The removal of large limbs also causes an unsightly trunk, making it rough, harder to clean and a more secure harbor for insects, moss, &c.

When superfluous roots or branches are removed in their incipient stages of growth, no such effects are produced. Summer pruning, or more properly nipping of the shoots as they grow, can often be employed to advantage, and whenever it can be it is far preferable to pruning when the wood is dormant. This method of pruning, if begun in season while the tree is young, will cause an even and symmetrical growth, which cannot be so well attained when all the pruning is done when the wood is dormant. Spring-set trees are generally in need of thinning out of superfluous branches, shoots and buds of the same season's growth, which can be done better early in the season than when the wood becomes dormant. Blackberry and raspberry bushes can be rendered much more shapely, and of more substantial growth, by nipping in the canes when about three feet high, than by allowing them to spindle up; in which condition they are not as well-fitted to carry a crop of fruit, or withstand severe cold or storms.—*Examiner and Chronicle.*

Culture of the Grape.

In a recent number of the *New York Tribune*, D. E. Loveridge, of Delaware county, N. Y., discourses in this wise on the culture of the grape:

The vine loves clay loam with small stones mingled in the soil. Plant on the driest and sunniest spot you have. They delight in sunny hill-sides, facing west and south, but abhor hill-tops. As regards house-lots, don't plant your vines close to the buildings. The vine likes free air as well as hot sun. Set out one-year layers or one-year roots grown from cuttings eight or ten inches long—good vigorous roots. Make the soil mellow eighteen or twenty inches deep, and set out with great care. Labor spent in setting out pays a large interest. Cast a shovelful of fine manure around each root. Do not overmanure. That makes fatted roots, and they lack constitution. Cultivate the ground in which your vines are set as much as your garden or corn-field. Suppose your vines set out and grown a year; then comes that most important matter of pruning. Leave your vines unpruned, and you will have sour or insipid grapes. Prune not, and all your toil is vain,—just as it is with the vines of human life.

Bear this rule well in mind and never depart from it: For the first four years your one object is to make root. The vine is of account only as it indicates strength of root. Every pound of grapes you allow to grow the first four years, will cost you ten or even a hundred pounds in after-bearing. Say your roots have grown in their place one year; in March or early April cut off all shoots save one, and leave two buds on that. When these buds are grown five or six inches, break or cut off one. Leave only one cane to grow. The second spring from setting roots, cut off again all but one cane; on that leave five or seven buds.—When well started, break off all but three shoots.

The third spring, if the shoots have grown well, cut one close to the ground and then clean off the buds on the other two, nine to twelve inches up; then leave six to eight buds on each cane, and cut off all wood above. Now, you thus form a head for all future pruning. Keep that head ever after. After three years, from the head thus formed, grow your grapes. No matter how old the vine is, you never ought to have more than three feet of old wood on any vine.

After pruning, as I have said, for the first three or four years, ever after cut off all wood except three or four canes of the last year's growth, and leave these not more than three feet long. Remember that all the fruit you grow on a vine the first four years will take a larger interest out of the life-principle of the vine than any Shylock would dare to do. The time to prune is, I think, from February to April 15. It will do any time from December 1. The proper canes to leave are not the rampant ones, but the firm, bright, close jointed. If you want a grape arbor, grow it for an arbor, and that alone; but do not ask good fruit of it.—Good fruit comes only from severe pruning. Men tell of gathering three or four bushels each from old vines allowed to run their own wilful way. Well, I bless them if their teeth and constitutions are hard enough to endure them.—When the fruit begins to turn, people have been known to strip off the leaves to let the sun in on the clusters. It would be just as sensible to tear away the flesh between the ribs to let more air into the lungs. Leaves are the lungs of life, the power by which sweetness is gathered unto the fruit. The thickest and brightest foliage pledge the best fruit.

As to varieties, the Concord is a friend that sticketh closer than a brother. It takes kindly to almost any soil; it is very hardy; the fruit is not the best, but fair. By all means reckon the Concord high in your favor. In that well-known and perhaps best grape region—that at Hammondsport around Reuka Lake—Delaware and Catawba are the most profitable. They are chief among many; but the Catawba is no good in this section, and I very much mistrust the Delaware. I have never seen it doing well in this locality. The Isabella is too late; Diana likewise. As a vine somewhat tried in this region, the Brighton has shown good manners. It is a fair grape, very early, hardy, and a very good bearer. Try the Hartford Prolific. The Agawam is coming up in favor. I might mention many, very many: but I am persuaded that we must have large experience before we can speak with authority. Our region has not as yet been much opened unto knowledge. My judgment is: plant Concord and Brighton, and experiment with some others.

Ripening Pears.

At a late meeting of fruit-growers in the western part of the State of New York, a member said he had tried many ways to ripen pears, but had found the best way to be to pack them in close boxes and keep them in a cool though not too dry an atmosphere; but did not say where this place exactly was. Pears so ripened, he averred, come out with better flavor and color than if exposed to the atmosphere to ripen; but did not say that these boxes were air-tight. Another person stated that he had known pears buried "right in the soil out of doors to come out in perfect condition in the spring." Is this really so? We can't believe it. We have tried it several times, and seen it tried we think a score of times, and in every instance it was not simply a failure, but ruined all the fruit. Those that had not rotted outright were worthless, as all their flavor had departed, and an earthy taste—if it could be called a taste at all—was all that was left. Indeed, no fruit-raiser who has tried this plan once will care to try it again. Both pears and apples will keep best in a cool, dry cellar on latticed shelves, and in single layers If they are not to ripen, the cooler the cellar the better; and if it should be too moist, fresh lime under the rows of shelves will be a great benefit. Try it and report. Even packed in dry barrels, and kept under a shed, protected against rain or moisture, to remain there until late in November and freezing weather approaches, then remove to a cool, dry cellar and then the barrels headed up, is good as any way, where the quantity on hand is large and the purpose is to keep them over winter for spring sale. In fact, we have known apples put up in this way that have been preserved sound and good into June!—*Germantown Telegraph.*

Apples, Apple Juice, Cider, Vinegar.

This is most emphatically "the bearing year" with apples. Not only are well-kept orchards in full bearing, but every superannuated and half-decayed tree, and every scrub and chance seedling by the roadside, is loaded in a manner seldom seen in a lifetime. With this abundance it is evident that with apples there will be a glut in the market. There will be no room except "higher up," and those who send poor fruit to market had better use their barrels for firewood, and save the freight charges. There is always a certain demand to be met, but this year only the select fruit will supply it. In years of plenty, careful selection and neat packages tell. The almost daily inquiries as to fruit-driers show that preparations are being made to dry a share of this abundance, and we hope by this article to anticipate the inquiries that will soon be made as to disposing of the fruit in various liquid forms. The great use of apples in this year will be to make vinegar. In the fermentation of cider, the sugar of the apple juice is converted into alcohol, and in making vinegar, that alcohol is changed into acetic acid. The conditions of this change are full exposure to the air and a high temperature. The richer the cider in alcohol, the stronger will be the vinegar and the more slowly will the change take place. Ordinarily, the cider is put away in the cellar or some out-building, and in time, it may be two or three years or more, will be found to be changed into vinegar. Those who have heard of the "quick vinegar process," thinking it can be applied to cider, often ask us to give a description of it. In this process, a liquid con-

taining alcohol, usually in the form of cheap whiskey, is converted into vinegar in a few hours. But this is not applicable to cider; for in the fermentation of cider or other fruit juices, the change into vinegar is accompanied by the growth of a very low form of plant, "the mother," as it is usually called, and this would so clog up the apparatus of the quick method as to very soon put a stop to it. Still, the change of cider may be greatly hastened. Those who make cider-vinegar on a large scale have a house especially for the work, and this is heated to about 70°. Vinegar cannot be made rapidly at a much lower temperature. Exposure to the air is important; hence the casks are not filled, but only partly so, in order to expose a broad surface of the liquid to the action of the air. Exposure is increased by frequently transferring the cider from one cask to another, letting it run very slowly. Exposure can be promoted by allowing the partly-formed vinegar to slowly run down a long trough, and also by allowing it to trickle over corn-cobs placed in a cask, the cobs having been previously washed and soaked in good vinegar. Old vinegar acts as a ferment, and hastens the change, and the mixing of new and partly-formed vinegar with a portion of old and strong vinegar helps the change. Another method to hasten vinegar making is to add yeast to cider, or, what produces the same effect, the "mother" from vinegar barrels. The condition for the most rapid conversion of cider into vinegar may be summed up: A temperature of at least 70°, all possible exposure to the air, the addition of old vinegar to new, or the use of "mother." It should be remembered that the weaker the cider in sugar the weaker will be the vinegar, and the more rapid the change.—*An Agriculturist.*

Floriculture, &c —October, 1880.

By W. D. BRACKENRIDGE, Florist and Nurseryman, Govanstown, Baltimore Co., Md.

Lawn and Pleasure Grounds.

We gave some simple instructions on former occasions with regard to the time and manner in which Evergreen trees and shrubs should be removed and planted, and if this work has not been gone through with, we consider that it is high time it was attended to; for we do not consider it safe work for the uninitiated to perform later than the middle of the month, at which time the planting of shade or deciduous should begin. Heretofore we have given our views freely on the disposition and grouping of these kinds of trees on the lawn, where their presence is demanded more for shade and ornament than for any useful purpose, so far as the timber which they contain is concerned. In taking timber into consideration here, we would simply remark that it is daily becoming more scarce, while the demand is increasing. Therefore we deem it high time that our land-owners should begin to provide for the deficiency, by planting their waste lands with Oak, Ash and Chestnut trees; but when we name these, we would not be unmindful that the Hickory and Tulip Poplar produce very excellent timber for the use of both the farmer and carpenter. We would plant trees thickly along rocky ravines and steep declivities where little grass is produced, and cannot be worked by the plow; and as the majority of farmers have to support their families from the returns of the products of their farms, therefore we are strongly inclined to the belief that such planting would greatly enhance the value of their land. Why not grub out the brush-briers and weeds? If you do not live to enjoy the fruits of such labor, why not plant for posterity? Some will say, Oh, we can't afford the expense. Yes, but let me tell you: you have to afford to pay taxes on waste land that yields you nothing, while, by planting it with useful trees, it will year after year become more valuable.

Sensible farmers plant the White Locust along their lanes and fence-rows; this timber is of fast growth, and, on account of its lasting long when placed underground, is very valuable for fences and gate-posts. There is another good quality belonging to this tree: grass will grow under its shade. Having this once intruded on the province of the farmer, for which we ask his pardon, he must not be astonished should we pay him another visit at some future time.

We would advise all who are fond of spring-flowering bulbs to prepare at an early day ground to receive roots of Crocus, Snow Drops, Hyacinths and Tulips. They all delight in a deep, rich, light earth. Cover the Crocus and Snow Drop roots about three inches deep, those of the Tulips and Hyacinths about four inches; and about the first of December cover the surface of the bed with a thin layer of light manure, in order to prevent frosts from drawing the roots to the surface.

So soon as the frost kills the tops of the Dahlias, cut the plants over about six inches above the ground, laying the tops over the stumps so as to guard against early frosts: thus giving the tubers time to ripen off before lifting, which should be done on a dry day.

Greenhouse.

In this department, the taking up from the open ground all tender plants that are desirable for the decoration of the house during the winter ought to be gone about at once. To succeed with this work, it requires care in lifting or taking up, as well as in keeping them in a close shady situation for a few days before exposing them to much light and currents of cold air.

The remainder of stock of Calla Lilies should be potted in fresh earth, and by water and heat start them into growth; and such roots of this plant as were started some time ago should be stimulated by waterings of liquid manure, at least once every week.

Ten-week Stocks, Double and Single Violets, Wall-flowers, Carnations and Sweet Alyssum, being all more or less fragrant, are very desirable objects for the greenhouse during the winter, and should therefore be got into good condition during the growing season.

Now is a very good time to place in shallow boxes filled with sand, cuttings of Coleus, Geraniums, Roses, and other bedding-out soft-wooded summer decorative plants. The cutting should be short—say about two joints, one joint

or bud at the base and another above ground. When inserted, settle the whole by a good watering, and place the boxes in a temperate, partially shaded, place.

Cinerarias and Calceolarias should not have their roots become matted around the edge of the pots; but shift them, as they progress in growth, until they receive the final shift into 6 or 7-inch pots. Both of the articles we name are subject to be attacked by red spiders; hence they should be kept in a cool, rather damp, part of the greenhouse near the glass. But Calceolarias do well—perhaps better—if grown in a cold frame or pit where they can be kept from frosts.

Camellias will stand a few degrees of frost without suffering much; but we would advise those who have only a few specimens not to experiment on their hardy qualities, but house them under while the weather is temperate,—as the double-white kind, if the buds are far advanced, will become browned and drop off.

A Chapter on Rose Culture.

Every rose will not come from the slip. Of the three great divisions into which the rose family is separated, namely, the damask, the noisette and the tea, the last two may be propagated with more or less readiness from the slip or by budding; the first only by dividing the roots and planting the seed, which later method is resorted to, however, only when it is desired to obtain new varieties.

The best season for taking rose slips is in June, just after the profuse bloom of early summer is over, although a person who knows exactly how to cut a slip may find good cuttings throughout the warm months. Judgment and discernment are needed for the selection at all seasons. I know a generous lady who sent her friends immense armfuls of boughs with hardly a real cutting upon them.

One should choose from a good vigorous branch of last year's growth a fresh shoot, containing two or three buds, such as will always be found more or less swollen at the base of the leaf stems. It should be cut from the parent branch diagonally, with a smooth, clean cut that will bring off a little of the old bark as well, in order to make the condition as favorable as possible for the formation of roots. Have ready a box or pot of rich mold. With a round, pointed stick make a hole several inches deep, and fill it up with clean sand; insert the end of the slip in this sand to the depth of one or two inches; be sure to make it firm in the soil; and the sand acting as a percolator for moisture, you may keep your slip well watered. You can soon see, by the swelling of the buds and the dropping off of the old leaves, whether the slip is indeed taking root; but do not attempt to remove it to the place where you would wish it permanently to remain until it has put out several sets of new leaves.

An ingenious way to raise a set of slips has been recommended by Mrs. Loudon, which we have tried with unvarying success. It is to take an earthenware flower-pot, gallon size, and fill it more than half full of broken potsherds, pebbles, bits of slate, or such things; now set in the middle, on top of the refuse materials, another similar flower-pot, half-pint size, with the hole at its bottom stopped up tightly with a cork; let its mouth be even with that of the large outer one; fill up the interstices with silver-sand or other pure sand, and set in a row of slips all around cut according to the directions given above. Keep the inner pot full of water all the time, but do not water the slips directly. In about six weeks your slips will have fine roots and can be potted. A hand-glass always hastens the process of rooting and enables you to take advantage of the sunshine; but if you are not provided with one, be careful to keep your plants in the shade until they show certain signs of independence of life.

Roses need very rich soil to bring them to perfection, thriving best in a mixture of well-rotted manure, sand and garden loam, and to stint them of nourishment is indeed poor economy.—*Ex.*

Bedding-out Plants.

We are inclined to think that the "coming plant" for ornamental foliage beds is the Acalypha. We have now in cultivation three varieties—Tricolor, Mussica and Macafeeana. The first is the oldest in cultivation, and is not quite so brilliant as the others, but it develops immense foliage in our hot sunshine, and makes an attractive plant. The Acalyphas are peculiarly well adapted for bedding in our climate, as they require our brilliant sunshine to bring out the colors of their foliage, and no amount of drought seems to injure them. Another fact not generally known is that they stand pinching and stopping as well as a Coleus, and in fact need hard pinching to make them spread and get bushy. They are easily propagated from the half-ripe wood, and I find that August is the best time to strike them. One thing the propagator must avoid, however,—that is not to pot them from the sand until very strongly rooted. If potted as we do other cuttings, as soon as young roots are emitted, a great many of them will damp off in the pots. I found the same trouble years ago in propagating the Hydrangea Paniculata Grandiflora from soft cuttings. Almost every cutting of this Hydrangea will damp off if potted as soon as rooted; while, if left in the sand until a strong mess of roots is made, no trouble will be found. I have been experimenting somewhat in bedding Crotons during the two past summers, and while I find that every variety I have tried acquires a brilliant color when bedded out in full sun, there are some which are peculiarly adapted to this purpose. The best of them for bedding are Interruptum, Weismanii and Volutum. I have not bedded out any of the varieties of Croton Trilobus, but intend to try all the varieties I have next season. The past summer has been very hard on Palms planted in the open ground, and some of mine, which were very handsome when put out, look very badly now. I shall not put the following out in fall sunshine again, viz: Kentia Fosteriana, Areca Verschaffeldtii, Ptychosperma Alexandræ, Brachea Filamentosa

and Latania. Phœnix Dactylifera and Chamerops Hystrix do well.

The new sorts of tuberous-rooted Begonias may be set down as failures in our climate, at least for out-door purposes; but there is one very old tuberous Begonia which is not only a beautiful bedder, but stands our winters perfectly. I refer to the old Begonia Evansiana, (Discolor.) We have a bed for it here, which is now in full bloom and presents a very handsome appearance, with its broad rich foliage almost hid by the masses of rosy flowers. How long this bed has been planted I do not know, but it has had no protection the past two winters. I shall lift the tubers this fall simply because they are too thick in the ground and need rearranging. I propose planting the bed with early Tulips, and then replant with the Begonia roots. The Tulips will be past before the Begonias appear above ground, and then they soon cover the whole bed with their handsome foliage, and save the usual bother of cutting away the Tulip tops before they are ripe, in order to get bedding plants out. Another old thing we have now in bloom which is seldom seen. This is the Sternbergia lutea, (Amaryllis lutea.) The dark green foliage studded with the golden crocus-like flowers is one of the most attractive plants now in the herbaceous border. The bloom is exactly like the golden-yellow spring crocus, but slightly larger and of more substance. During the hot summer weather nothing is seen of it, but on the approach of cool nights it shoots up its leaves and the flowers soon follow. The foliage retains its beauty all through the winter, and until May, when it withers and remains dormant during summer. It is a good companion plant for Colchicum Autumnale, which the flower much resembles.

Since I began to write this article I have received a new variety of the Acalypha, which promises to make a pleasing contrast with the gorgeously-colored sorts we already have. This is Acalypha Marginata. The leaf is a bronzy green margined all around with a rosy blush. It stands the sun as well as the other sorts—at least I am so informed. On a recent visit to Washington I found that Mr. Smith, the accomplished curator of the Botanic Gardens, has been making some experiments with Dracænas as bedding plants, and I was surprised to find that Dracæna Amabilis is a perfect success outside. Most of the bright-colored sorts fail entirely; but if this strong-growing and showy sort can be relied upon, it will be a great addition to our sub-tropical beds.

The weather is fearfully dry, and it is now getting to be a serious question whether we are to have any Cauliflower and Cabbage plants, as the seed does not seem disposed to sprout. All the fall crops such as Celery, Spinach, &c., are a month behind-hand. W. F. Massey.

Hampton Gardens, Sept. 25, 1880.

Vegetable Garden.

Notwithstanding the discouraging drought of the early summer, vegetables of most kinds have this year been more than usually productive. I find that we have already gathered from a very small patch of Lima beans—say ¼ of an acre—about 95 bushels,—as much as we have got from nearly twice the surface in former years. Tomatoes, sweet corn and string beans have also been very abundant. I have but little to report concerning the merits of particular varieties, as there is neither time nor opportunity for experiment here. The Lima beans above mentioned were of two kinds—the *large Lima* and *Dreer's Improved*. It is hard to say which is best. In sweet corn nothing can excel the *Egyptian*. *Henderson's Early Summer Cabbage* is an excellent fall cabbage, heading up solid by the first week in September.

There is plenty of work to be done in the garden this month, such as cleaning the ground after the various crops, hoeing and cultivating the crops sown last month, earthing up celery, filling vacancies in beds of rhubarb, asparagus and small fruits, and in making fresh plantations. Cabbages will either be kept over in frames or transplanted to the open ground. With our sharp experience last winter we must be on our guard for early frost. There is much to be learned with regard to keeping celery. The farmers are putting everything into *silos*. I wish they would try celery. The most feasible plan, however, would seem to be that of a correspondent of the *Farmer*, viz: to have it in trenches, made on ridges of earth, and protected from rain by boards. If not already done, a few plants of parsley should now be transplanted to a cold frame for winter use. Towards the end of the month cauliflower to head may be planted in frames The soil used should be changed annually. Decayed sods, or earth from fence corners, well enriched with manure, seem to suit cauliflower well, and Lenormand's short-stemmed is a good variety to use. The *leek* is a fine winter vegetable, and is a surer crop than the onion, at least with me. It should be more generally in use. They are said to be hardy here, but for convenience-sake I keep them in a narrow trench, slightly covered. It is yet rather early to store away roots. I propose to build up mine in the usual form, but entirely on the surface of the ground, as I have hitherto lost a good many in the damp earth. John Watson.

Work for the Month—October.

The completion of the fall work and preparation for the winter, so that everything may be ready for the coming in of cold weather, will keep the farmer busy enough at this season.

Wheat, where not already seeded, should now be gotten in,—it being, as a rule, safe after the fifth or sixth of this month from the attack of the fall brood of the fly. Early enough sowing to enable the plant to make growth sufficient to establish itself before severe cold, greatly promotes its chances of success. The roots take hold of the ground, and ramify on every side; they are situated and ready to continue their functions in the early spring; they have a double chance to spread and tiller, and are the more invigorated to resist the fly in the spring. But to secure the earliest seeding now possible, no step ought to be omitted in the

proper preparation of the ground, this important point overbalancing all others in making the crop a certain one. The later the sowing of the crop, the greater the necessity of securing an application of some nitrogenous manure to give an impulse to the plant at its starting off, and thus help it to make up for the late seeding. An addition of Peruvian guano, of fish manure, or some similar ammoniacal substance, to the superphosphates which do not contain this element, is advisable under the circumstances of delayed sowing.

Rye ought to be seeded promptly if it has not been already done, the crop being one which deserves more attention than it often gets,—the value of the straw, where it can be marketed, making it, independent of the grain, a much more valuable crop than it often proves.

Buckwheat ought to be cut before a heavy frost, and when about half the seeds are ripe; then put up in moderate-sized shocks, and carefully handled to avoid waste by shattering. It should be threshed as soon as possible. When stacking the straw, the addition of a little salt makes it more palatable and improves it as forage.

Tobacco.—The tobacco crop being now about housed, there is nothing more to be done than to keep the tobacco houses closed in damp weather and opened in dry. Ground leaves should be tied up and prized as fast as possible; they always sell best in the fall.

Roots and Pumpkins.—Roots decay from bruising in digging and handling; and they ought to be treated carefully and stored away before severe frosts. Pumpkins should be put away carefuly under shelter and where they may be got at conveniently, they making during the fall a valuable addition to cows' rations, increasing quantity and improving the milk.

The Corn Crop should not be housed until well cured, but the fodder ought to be put away as soon as it is ready. Look to your fences, so that you may not suffer from trespassing stock.

Plowing.—Tough and stiff soils are benefited in texture by fall plowing and exposure to the weather influences of the winter. The plant-food they contain becomes separated and ready for absorption by future growing crops, and it is made more abundant by the mechanical and chemical forces thus allowed to work.

Lime may be applied with great advantage after plowing in the fall. It is the first requirement, however, of its usefulness, that it should be kept near the surface, and never plowed under.

Draining, if required, can be done now, often very advantageously. Water furrows in grain-fields should be properly laid out and kept clear.

MARYLAND COUNTY FAIRS.—The Kent, Carroll, and Montgomery Fairs were all held last month, and all are reported as successful.

In October the following will be held: Harford, 12th; Cecil, 13th; Washington, 19th, and Frederick, 26th;—the last having been postpostponed on account of the Baltimore celebration during the week originally fixed. We are indebted to the officers of these and other societies for invitations to attend their exhibitions.

Our French Letter.

Sheep Rot.

Messrs. Editors American Farmer:

M. Zundel has scientifically investigated the terrible malady—*Sheep rot;* and by a series of patient observations, has thrown considerable light on the origin of the disease, its development and contagion. The malady is the result of an alteration of the blood, wherein the watery element predominates. It is the predominance of this water that has popularly associated sheep rot as peculiar to wet seasons and marshy lands, concluding that the water penetrated into the organism by air saturated with vapor, and by forage plants extremely aqueous, on which the animal was condemned to feed. Associated with these symptons, were worms in the liver, or flukes; but these were considered merely as the consequence of the animal's exhausted system. M. Zundel's conclusions were the opposite of these ideas. For him, if the sheep becomes diseased, it is owing to the medium in which it lives being infected with worms; its malady is not derived directly from either the air or the food; its liver, an essential organ, is affected, as such becomes the home of the worm. The rot is due to the presence of the worm, just as is the scab to the acari; results the same, exhaustion of the system by the invasion and the destruction of organs. There are two varieties of worms, of which the smaller penetrates deeper into the hepatic duct, and produces more profound injury. The action of the parasite is slow, and may be divided into three stages:—The first coincides with the months of August, September and October, when the animalcule in its most rudimentary stage enters the system by the forage and the intestinal canal, and arrives at its natural home—the liver; second, the worms form groups, obstructing the ducts by irritating their mucous membrane, and so narrowing their volume. It is at this period that the animal commences to exhibit signs of exhaustion, and when the tissues lose their color; the third period represents the decay or "rot" of the liver, and is affected gradually in the months of January, February and March; the worms have now arrived at their full development, and fill the liver ducts while distending them. It is at this moment they quit the liver for the intestines, where they are digested. But they have anticipated the preservation of their species since March and the following months, by numbers of eggs, which, absorbed by the bile, are expelled with the excrements, and where they can be detected by the microscope; as many as 3,000 being found in a pound of the dejections, and 50 in a single drop of bile. The eggs remain in the larvæ stage pending two or four months, when they become transformed into an animalcule, very aquatic and very active, penetrating into the intestines of the sheep, either by means of the water drank, or attached to snails and insects that cling to the grass. The rot is contagious, but no marshy land can produce the disease unless the water or the pasture be previously infested with the parasite; it is only in autumn that the infection can take place, as by them the eggs ejected in the excre-

ments are hatched. Avoid, then, pasture lands, where the worms must exist, from being the feeding-ground of diseased stock. The winter exposure kills the worms.

New-mown hay is not, as some allege, an irritant of the digestive organs. Where it produces irritation, is simply the consequence of allowing animals to eat too much of the odoriferous, appetizing forage, and not drinking sufficiently, brings on indigestion.

Feeding Horses.

The omnibus company of Rouen brings its testimony to the satisfactory substitution of half the feed of oats, by maize. This change has been in operation since 1876. Only the maize, instead of being crushed, is cooked, and then rolled in bran, so as to be coated with the latter, as an almond with sugar in the bonbon. The horses on the old system received 17 lbs. of oats, with hay and straw, per day; now they are allowed: one-third less hay, 9 lbs of oats, 7 lbs. maize and 2¼ lbs. of bran. A carriers' company in the same city since 1876 has completely dispensed with oats; the maize is mixed whole, with the chopped hay and straw; 18 lbs. maize, 10 lbs. hay and 7 of straw constitute the daily ration, and the horses execute work, from 12 to 20 miles per day. In Belgium, crushed beans are commonly given with chopped straw, to horses.

Agriculture in Poland.

Poland has been famous for its wheat and wool; the latter, before Australian entered the market, sold easily for 2s. 2d. ₱ lb.; at present the half of this price cannot be obtained. The Polish agriculturists decided to turn their attention to the precocious production of mutton. For two years they have imported from France the Soissonnais breed of Merinos, and with such success that it promises to supersede all other breeds. Another innovation has been introduced, with similiar beneficial results: the Goffart system of trench provender. In Poland, where the winter is two months longer than in France, this supply of preserved green fodder (maize, rye, &c) has revolutionized most profitably farming practices.

M. Pasteur continues his important experiments on the subject of infectious diseases, and to aid which the government has accorded funds. He has been able to inoculate poultry, to protect them against the cholera malady; and he now finds that inoculation renders them, also, exempt from the contagious disease *charbon*, which decimates live stock.

Agricultural Items.

Austrian have confirmed French experiments and experience, that gypsum acts best when applied, as in the case of lucern after each cutting; that in other cases the best moment for applying it is in autumn. However, while on calcareous soils in Austria, the use of gypsum was not remarkable, in Touraine, where the soil is limy, the dose of gypsum proved efficacious.

Professor Sanson, after the result of many experiments, lays down, that there is no connection between muscular work and combustion in the animal economy; that is to say, that there is no combination between the carbon of the immediate principles of nutrition and the oxygen of respiration, producing carbonic acid and setting free heat as the source of muscular work. Mechanical energy has its source in the albuminous, immediate principles, which, being the most complex, are the least combustible of all; they are the aliments of strength.

The phylloxera continues to advance. Several official reports have been published, testifying to the success of fighting the insects with the destructive powders,—sulphuret of carbon and sulpho-carbonates.

The beet crop is excellent, especially in quality; the factories are already at work, and accepting orders at good prices for the delivery of new sugar.

An authority lays down, that the infallible means to destroy vermin in pigeon cots, is to wash the latter daily, or sprinkle them with water. Vermin thrive best where places are dry. If the pigeons be hatching, a splash or so on them will be of no consequence; they will soon become accustomed to it.

The Experiment Station at Gembloux.

The agronomical station at Gembloux, in Belgium, is the first institution of its class on the continent. It takes the lead in bringing science to the door of the farmer. It executes, under certain conditions, analyses gratuitously; it is in relation with several manufacturers of fertilizers who have bound themselves to sell at prices based on the analyses of the resident chemist; the same practice applies to oil cakes, and is about being extended to seed merchants, who allow an inspector or a purchaser to select a sample which is then subjected to a test, to determine the quality of the seeds from their germinative power. Some years ago Belgium imported fossil phosphates; since the discovery of the immense beds at Ciply, she has ceased to import, besides largely supplying the English and German markets. The war between Chili and Peru having interrupted the supply of nitrate of soda, nitrogen of organic origin has been secured in dry blood, containing from 9 to 12 per cent. of azote. The blood is applied in the form of dried powder and phosphates, and is excellent for meadows, cereals and light soils.

Paris, Sept. 15th, 1880. F. C.

Looking to America for Grain.

A Liverpool telegram, dated October 1, says: "The results of even the earliest thrashing in Great Britain and other European countries show that America must be chiefly looked to for the season's supplies. It is doubtful whether the present reduced prices are, considering the competition of the Continent, sufficient to attract supplies. The British markets are again dearer and there is more demand. The improvement extends to ports of call, wheat in passage and for shipment. There are now on offer at ports of call fifteen cargoes of wheat and five of maize. At this market to-day the attendance was up to the average. There was a good demand for winter wheat at 2d., and other descriptions at 1d. advance. Winter qualities of flour were in better request and slightly dearer; other grades were steady. There were no Canadian peas on offer at first hands.

The American Farmer.

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BALTIMORE, OCTOBER 1, 1880.

The American Farmer for 1881.

We thus early call the attention of the friends of our journal to the usual terms which we offer for a new volume, and to solicit their aid in the extension of our circulation for the ensuing year. Our new volume commences on 1st January, but new subscribers will be furnished with the numbers for October, November and December, free of charge, by remitting $1.50,—thus giving a year and a quarter for the usual subscription fee. Clubs of *five* will be dealt with on the same terms as to time, but at our usual rate of $5 for the club, and anyone remitting $10 will receive the eleventh copy free of charge.

The past record of the old *Farmer*, since our connection with it, must be the safest criterion to judge of its future course. Suffice it to say, that those who have the conduct of it were never better prepared or more zealous in the good work in which they are engaged than at the present time, and they are determined to avail of all the *solid* improvements of the times, to keep it up to the high standard it has ever enjoyed among the most reliable agricultural journals of this country. We earnestly appeal to our friends to renew their efforts in our behalf, in the obtaining of new subscriptions.

Three Numbers Free.

To all new subscribers whose names are received before the 31st of December, we will send the numbers for October, November and December free. This applies to all names received, whether singly or in clubs.

Our terms will be as follows: One copy one year, $1.50; five copies, $5; for $10 we will send ten copies and an extra one to the getter up of the club.

Grand Celebration of the Sesqui-Centennial of Baltimore.

Our readers need not be reminded that the grand celebration of the 150th anniversary of the city's birth is to commence on the 11th of this month and continue six days. Every paper of the city and State for weeks past has been sending forth the particulars of the extraordinary arrangements which are making for the greatest exhibition ever witnessed in this city since its foundation. Every class of our people—civil, military and ecclesiastical—appear to vie with each other which shall have the finest display in their respective departments of life, to make the affair successful in the highest degree; and they are assured of the co-operation, also, of various associations and well-wishers of the honor and prosperity of Baltimore from other parts of Maryland, as well as of the neighboring States, whose business and social relations are in unison with our own.

We cannot, of course, attempt to give any extended program of what may be expected; but this we can say, that such of our friends who can possibly make it convenient to visit our city during the time of the continuance of the celebration, will have cause to congratulate themselves that they will have the opportunity of reciting to their children in after years some of the wonderful scenes of which they were witness in this grand display of the Monumental city.

The Maryland Horticultural Society.

As we are closing our pages, the Annual Show of the Horticultural Society is in progress, the display being equal to any previous one, except in fruits and vegetables, which, owing to the season, are few in number and not superior in

quality. The plant collections are unusually handsome and interesting, and great taste has been displayed in the arrangement of the 5th Regiment Armory, where the exhibition is held. The plants are placed in groups on the floor, the outlines being so varied as to make an attractive whole, yet giving opportunity for inspecting individual specimens. Messrs. W. H. Perot and R. W. L. Rasin are the largest amateur exhibitors; and among the commercial florists, R. J. Halliday, John Saul of Washington, James Pentland, John Cook, and S. Feast & Son. The cut flowers are not numerous, but the floral designs are abundant, with marked good taste prevailing in most exhibits. The attendance has not been so large as in previous years, the attention of the general public being very largely engrossed by the preparations for the city's celebration this month.

Jerseys at the Baltimore County Fair.

As was anticipated, the showing of Jersey cattle at the Timonium fair was a large and interesting one; and the judges, Dr. Erich Parmly, of New Jersey, and Mr. A. P. Rowe, of Virginia, well known as discriminating critics of this breed, found the task before them one of more than ordinary difficulty, from the general merits of the exhibits.

In the class for cows over three years, there were 29 entries, the blue ribbon going to Mr. R. W. L. Rasin's "Bijou," an imported cow, now about 13 years old, and the red to Mr. T. Alex. Seth's "Arawana Buttercup," a cow recently purchased at a long figure from Mr. Crozier. For heifers between two and three years, Mr. Shoemaker's "Truth"—a neat formed and pretty animal—got the palm.

Mr. John Ridgely, of Hampton, carried off the first on bulls of three and one year, respectively, for imported "Derby" and "Genl. Phillips," and Mr. E. S. Pearce took first on "Englar" in the two-year class.

There were five entries for the herd premium, but one did not come to the ring, and the honors remained, justly, as was universally admitted, with Messrs. Clarke & Jones' herd.

The following note to their report was made by the judges:

"The Committee on Awards to exhibitors of Jersey cattle, desire to make special honorable mention of the pen of nine heifer calves, exhibited by John Ridgely, Esq., of Hampton, for general excellence and uniformity.

"In the "three-year-old and over" class of Jersey cows, there was much close competition, and the Committee on Awards found great difficulty in selecting from them two of the best, when so many of those exhibited were deserving of premiums. Indeed, the same might be said of the different classes of Jerseys on exhibition."

The sale of Jerseys and other stock was interrupted by the rain; but the feature of an annual auction is one meeting general favor.

Society for the Promotion of Agricultural Science.

An association bearing this title was provisionally organized during the meeting of the American Association for the advancement of science at Saratoga, N. Y., in August, with Prof. Beal of the Michigan Agricultural College as president, and Dr. E. L. Sturtevant, of Massachusetts, secretary. It is intended to embrace in its membership the most capable and advanced scientific inquries in the field of agriculture, and at the meetings to have read papers giving results of original research.

MESSRS. FRANKLIN, DAVIS & Co. have now one of the largest nurseries in this part of the country, their nursery stock occupying some 400 acres, instead of 100 as the types made it in their advertisement in last month's FARMER.

THE CIDER PRESERVATIVE, advertised by Messrs. Zinsser & Co., has the reputation of being not only perfectly free from any deleterious qualities, but entirely effective for the purposes for which it is recommended to be used.

Handsome Prizes for Wheat and Corn Crops.

Mr. R. W. L. Rasin, one of the largest manufacturers of commercial fertilizers in Baltimore, who resides in summer on a beautiful country place on the Maiden's Choice road, and who is a vice-president for the 13th district of our County Agricultural Society, has made the society the umpire and the distributor of the following prizes:

For the largest yield of wheat, raised on one acre of ground, seeded in fall of 1881	$100
For the next largest yield of wheat, raised on one acre of ground, seeded in fall of 1880	50
For the third largest yield of wheat, raised on one acre of ground, seeded in fall of 1880	25
For the largest crop of corn, grown on one acre of ground, planted in spring of 1881	100
For the next largest crop of corn, grown on one acre of ground, planted in spring of 1881	50
For the third largest crop of corn, grown on one acre of ground, planted in spring of 1881	25
Total	$350

The conditions being that the contestants shall be boys, residents of the county and not over 17 years old, and that all the work of plowing, cultivation, seeding, planting, harvesting, &c., shall be done by the boys themselves; the wheat, however, when it is cut, may, under suita-

ble supervision, be threshed by usual means. It is not required that any named brand of fertilizer or any at all shall be employed. The methods of culture, the kind of seed and the manner of sowing it all may be according to the pleasure of the cultivator, but the full measure of a standard acre will be required in every case. The society will act as umpire and judge between the competitors and through local committees to be appointed wherever there are contestants, will have the land and crops measured so that the greatest fairness shall everywhere prevail. The wheat-crop prizes will be given out at the fair at Timonium for 1881, and those for the corn crops before the Christmas following. At the first meeting of the board, which will be held in a few days, the few necessary rules to be observed will be adopted and published. In the meantime the boys can be going ahead with their preparations, plowing, &c., for the wheat-crop tests.

Mr Rasin, by his very handsome offer, extends the field of activity of our Agricultural Society, which is showing itself a really useful institution, and at the same time is stimulating, in a promising and proper direction, the energy and industry of our boys. He deserves and will receive the praise which pertains to a wise and generous act, which in this case is not influenced by any desire for popularity or any design to promote individual interests. We hope many of our youths will show a proper spirit in meeting the fine opportunity thus afforded them of showing their skill and grit.—*Baltimore Co. Union, September* 25.

Forethought.

Comparatively few people in our favored land realize how little of the outlay for what they call their daily living is in fact really essential to life, or even to a moderate degree of comfort; because even among laboring people there is usually latitude for individual tastes and notions as to the manner of living, and strict calculations as to close economy are not generally entered into. With them the principal evil result of the hap-hazard course so common among all classes is, that they rarely gather anything for a dependence in times of sickness or scarcity of work, and must therefore depend upon public charity. But among the class of people who seem to be well-to-do and live in a manner that would indicate abundant resources, this want of careful calculation works differently. In the first place every one in the range of such influence is educated up to certain requirements which, if the means for supplying them were suddenly withdrawn, leave the sufferer where, if thrown upon such charity as suffices for comfort to the laborer, would to them be worse than death. Consequently there is usually among their friends or relatives some one to stand between them and such an alternative. It may be done by bolstering them up in their business, or opening other avenues by which they can maintain themselves, or else by outright bestowal of the wherewith to sustain life. It is almost always, however, at an actual loss to himself, or else the risk of such a loss, that one man helps another to maintain or regain a footing in business; therefore it is not quite beyond the line of one's own business to have a care that those who would naturally turn to us in such an emergency should so shape their course as to avoid such a necessity.

We may practice economy and forethought throughout a large portion of our natural lives, and yet find ourselves almost compelled to yield all the fruits of it to provide for those who have in the meanwhile given no thought to providing for their own emergencies, and consequently have to measure our own comforts to this end. It follows, therefore, that people who are provident have a reserved right to object to the improvidence of those who would naturally look to them for assistance if brought to need it, or to assume their falling duties if death should remove them.

Men naturally claim the privilege to spend their own earnings as they choose; and if they were insured as to their future and that of their families, no one would dispute it. But while we have continually before us, as the result of such liberty, women and children left to the tender mercies of others, or else to earn their own living, with habits and education entirely unsuited to such a life, we may claim the right to remonstrate.

The father probably while living enjoyed his cigars and club suppers, in common with his associates, and taught his family to believe all these things essential to his position. He was considered a gentleman among gentlemen, and may have had no glaring vices; and finally, when his vitality was exhausted, a course of nursing and doctoring, together with the funeral expenses becoming a gentleman, and a "good fellow" at that, strip his family of everything they can command; yet the sanctity of the grave shields him from their censure and ours. Let us, however, instil into the coming man different principles,—the manliness of self-reliance, and, if he assumes the responsibility of a family, the true manliness of caring for them to the best of his ability, until they are qualified to take care of themselves, and securing them, if possible, against want or dependence if he were suddenly removed from them. There are many who ought to be men, who pay the slightest possible attention to these claims, and yet they assume to be gentlemen, thinking their appearance and good fellowship, and a certain free and easy manner, will establish their claim; but unless there is behind this a proper care for the welfare of their households they go through life as mere frauds—there is no true manliness in them, much less *gentle*manliness. Undoubtedly the man of this type is aware of this fact himself, and unwisely makes the more strenuous effort to disguise it by extraordinary assumption.

Without wishing to encourage the common mistake that women by right may fold their hands and depend upon some man of near or remote relationship to support them simply because of their sex, I would nevertheless, for their own sakes, teach my boys to shield women wherever they can from hardship or exposure. And this duty becomes imperative when he takes her from her parents' care, with the

promise to them, to her, and to his Maker, that he will kindly care for her; nor is the obligation less toward those for whose very existence he is responsible.

It is a marvel to me that so many men, seemingly tender in their care for their wives and little ones, should be so utterly careless as to what will become of them if they should become disabled or die. Accumulation of money with a view to riches and display, is at the expense of man and woman's better qualities; there is always some worthy purpose to which our overabundance ought to be applied, and at no time in the future will such comfort as we can afford give us more satisfaction than in the present. But we can never afford to use all we have; there must be steady and regular provision for misfortune to which we are liable, or else, sooner or later, somebody suffers.

The great temptation that assails both men and women is the seeming necessity to live as other people do. If we could once rise above that weakness, there would be less difficulty about shaping our expenses so as to bring them within our income. This yielding to prevailing customs or fashions among our associates, where we know we cannot afford it, is a more common and ruinous vice than gambling or intemperance, and yet there is scarcely a remonstrance raised from press or pulpit.

KALMIA.

Premiums at Baltimore County Fair.

Cattle—Short-Horns—Bull between 2 and 3 years, 1st, McDonough Institute; 2d, Sheppard Asylum; bull under 1 year, 1st, McDonough Institute; cow, 3 years or over, 1st, McDonough Institute; 2d, Sheppard Asylum; heifer between 2 and 3 years, 1st, McDonough Institute; heifer between 1 and 2 years, 1st, McDonough Institute; heifer calf, 1st, McDonough Institute; Jerseys (Herd Register) bull, 3 years or over, 1st, Jno. Ridgely, of H.; 2d, Manning & Bro.; bull between 2 and 3 years, 2d, Edw. S. Pearce; bull between 1 and 2 years, 1st, Jno. Ridgely, of H.; 2d, S. M. Shoemaker; bull under 1 year, 1st, Clarke & Jones; cow, 3 years or over, 1st, R. W. L. Rasin; 2d, J. Alex. Seth; heifer between 2 and 3 years, 1st, S. M. Shoemaker; 2d, Manning & Bro.; heifer between 1 and 2 years, 1st, Robt. Moore; 2d, Clarke & Jones; heifer calf, Manning & Bro.

Jerseys (Not Registered)—Bull between 2 and 3 years, 1st, T. T. Griffith; 2d, B. J. Galloway; bull between 1 and 2 years, 1st, G. P. Sheppard; 2d, W. S. Carroll; bull under 1 year, 1st, Col. B. F. Taylor; cow, 3 years old or over, 1st, G. S. Watts; 2d, J. Alex. Seth; heifer between 2 and 3 years, 1st, T. T. Griffith; 2d, do.; heifer between 1 and 2 years, 1st, Jno. Crowther; 2d, Wm. S. Carroll; Guernsey calf under 1 year, 1st, G. S. Watts. *Ayrshires*—Bull, 3 years old, 1st, T. A. Cochran; bull under 1 year, 1st, Albert Mays; cow, 3 years old, 1st, T. A. Cochran; heifer between 2 and 3 years, 1st, Albert Mays; heifer between 1 and 2 years, 1st, Albert Mays; heifer calf under 1 year, 1st, T. A. Cochran.

Herefords—Bull between 2 and 3 years, Jno. Merryman; bull under 1 year, do. do.; cow, 3 years, do.; heifer between 2 and 3 years, do.; heifer between 1 and 2 years, do.; heifer calf under 1 year, do. *Natives, Grades or Crosses*—Bull, 4 years, 1st, Wm. Hedrick; heifer between 2 and 3 years, 1st, B. J. Galloway; 2d, Geo. I. Richardson; heifer between 1 and 2 years, 1st, B. F. Morgan; 2d, B. F. Taylor; cow calf, 1st, Wm. H. Perot; herd of Short-horns, McDonough Institute; herd of Herefords, John Merryman; herd of Ayrshires, T. A. Cochran; herd of Jerseys, (Herd Register,) Clarke & Jones; herd of Jerseys, (not registered,) Robt. Moore; yoke of oxen, 1st, Edw. S. Pearce; 2d, McDonough Institute.

Horses, Thoroughbreds—Stallion, 1st, S. W. Worthington; mare and foal, 1st, S. W. Worthington; filly, 2 years, 1st, Jno. Merryman, of Hayfields. *Saddle Horses*—Mare or gelding, 1st, J. M. Pearce; 2d, do. *Light Draft Horses*—Stallion, 1st, B. F. Morgan; 2d, Job Smith; mare or gelding, 1st, Thos. Pearce; 2d, Walton Bosley; mare and foal, 1st, Jno. Merryman, of Hayfields; 2d, G. S. Watts; span of horses or mares, 1st, Wm. S. Carroll; 2d, Jno. Merryman, of Hayfields; colt or filly, 1st, 4 years, G. S. Watts; 1st, 3 years, A. Fossett; 1st, 2 years, Edwin Scott; 1st, 1 year, Jno. Crowther, Jr.

Sheep—Southdown bucks, 1st, S. K. Easter; 2d, J. T. Kelly; pen of Southdown ewes, 1st, McDonough Institute. *Shropshiredowns*—Buck, 1st, Chas. T. Cockey; lambs, 1st, do.; pen of ewes, 1st, Jas. Crowther, Jr.; 2d, Chas. T. Cockey; Lincoln buck, McDonough Institute; natives or mixed pen of ewes, 1st, Jno. Merryman, of Hayfields; 2d, McDonough Institute; pen of fat sheep, Jno. Merryman, of Hayfields.

Swine—Berkshires—Boar, 1st, J. L. & T. T. Gorsuch; 2d, F. VonKapff; sow, 2 years or over, 1st, Alex. Dance; 2d, F. VonKapff; sow under 2 years, 1st, J. L. & T. T. Gorsuch; 2d, F. VonKapff; pen of shoats, D. M. Matthews and J. F. Cockey, Jr; Chester white boar, 2 years or over, 1st, H. Eichelberger; boar under 2 years, 1st, B. F. Morling; pen of shoats, 1st, Manning & Bro.; Essex boar, 2 years or over, 1st, Frank Sanderson; boar under 2 years, 2d, J. F. Morgan; sow and litter of pigs, 1st, F. Sanderson; sow, 1st, do.; pen of shoats, 1st, do.; Yorkshire boar, 2 years, 1st, S. M. Rankin; sow, 1st, do.; pen of shoats, 1st, do. *Grades or Crosses*—Sow, 1st, Saml. Collins; sow and pigs, 1st, Saml. Collins.

Poultry—Jno. Merryman—B. B. red games, 2d; do. do. chicks, 2d; spangled fowls, 1st; blue fowls, 1st; B. red game chicks, 1st. Wm. Bowman—White Cochin fowls, 1st; Black Spanish do., 1st; do. do., 2d; White Leghorn fowls, 2d; W. C. B. Polish fowls, 1st; do. do., 2d; do. do. chicks, 2d; White Poland chicks, 1st; do. do. fowls, 1st; gold do. fowls, 1st; do. do. chicks, 1st; silver do. fowls, 1st; Golden Sebright Bantams, 1st; Crevecœur fowls, 1st; do. do., 1st; do. do., 2d. S. S. Hamburgs—Fowls, 1st; do. do. chicks, 1st; Pekin ducks, 1st. Dr. F. W. Patterson—Houdan chicks, 1st; do. fowls, 1st. G. P. Sheppard—Buff Cochin Fowls, 2d. Manning & Bro.—African geese, 1st; Bronze turkeys, 1st. T. W. Hooper—Plymouth Rock fowls, 1st and 2d; 2 dozen eggs, 2d. Dr. G. H. Cairnes—L. Brahma fowls, 2d; do. do. chicks, 2d. T. G. Cook—L. B. fowls, 1st. G. O. Brown—

L. B. fowls, 1st; B. L. chicks, 2d; W. L. chicks, 1st and 2d; W. L. fowls, 1st; G. P. H. fowls, 1st; S. P. H. do., 1st; Houdan chick, 2d; A. D. chicks, 1st and 2d; do. do. fowls, 1st; W. C. chicks, 1st; do. do., 2d; Sultan chicks, 1st; do. fowls, 2d; Af. Bant. fowls, 1st; do. do., 2d; P. R. chicks, 1st; do. do , 2d; B. B. R. Bant. fowls, 1st; do. do. do., 2d; B. B. R. game fowls, 1st; Part. Cochin fowls, 2d; W. F. B. Spanish chicks, 1st; Narrag. turkeys, 1st; gray Chinese geese, 1st. C. Baughm—Sultan chicks, 1st. Chas. B. Taylor—B. L. fowls, 1st; do. do. chicks, 1st. J. F. Cockey—G. S. Hamburg chicks, 1st; do. do. fowls, 1st. Elisha Kelly—B. L. fowls, 2d. Geo. Smith—B. Spanish chicks, 2d; white Fans, 2d. L. H. Urban—Black games, chicks, 1st. Benj. Marple—L. P. C. Fowls, 1st; do. do., 2d W. S. Diffenderffer—G. S. Bants. fowls, 2d; do. do, chicks, 1st; W. Barbs, 1st; Y. Bant. fowls, 1st; Black Trumpeters, 2d; Blue Balls, 2d; Mott. Trumpeters, 1st; Blue Owls, 1st. F. A. Rommel—Black Swallows, 1st; Blue Swallows, 2d; Red Barbs, 2d; Red Quakers, 1st; Black Fantails, 1st; Blue Owls, 2d. Miss Annie R. Matthews—Muscovy ducks, 1st. E. Buckley—D. Brahma fowls, 1st; do. do. chicks, 1st; do. do. do., 2d. G. O. Brown—Antwerp pigeons, silvers, 1st; Almond Tumblers, 1st; do. do., 2d; Antwerp Blues, 2d; Guinea fowls, 2d; do. do., 1st; Incubator, 1st. McDonough Institute—W. Jacobins, 1st. Wm. B. Sands—Eggs, 1st. T. W. Hooper—Eggs, 2d.

Dairy Products, Hams, &c.—Butter, 3 months old, 1st, Mrs. D. Jenifer; 2d, Mrs. D. Gorsuch; 2 lbs. butter, ½ lb. molds, 1st, Mrs. D. Gorsuch; 2d, Miss Maggie Chilton; ham, 1st, Mrs. D. Jenifer; 2d, Mrs. D. Gorsuch; hive of bees, C. H. Lake; honey in comb, 1st, C. H. Lake; 2d, Alfred Shriver.

Farm and Garden Products.—Bushel red wheat, Samuel Collins; bushel white wheat, C. L. Rogers; bushel of yellow corn, Sheppard Asylum; 20 ears yellow corn, Wm. Treadwell; 20 ears white corn, E. Scott Dance; bushel oats, Wm. Corse & Bro.; bushel rye, Wm. Corse & Bro.; Irish potatoes, Charles Bosley; sweet potatoes, Wm. D. Brackenridge; mangel wurzels, Frank Sanderson; collection fruit, E. D. Sweeney; collection of apples, 1st, E. A. Cockey; 2d, John Piersol; fall apples, E. Scott Dance; crab apples, W. D. Brackenridge; collection of pears. Wm. D. Brackenridge; fall pears, W. T. Walters; quinces, Mrs. D. W. Cross; peaches, Henry Eigus; collection hardy grapes, 1st, Aug. Huke; 2d, Joshua Parsons; Concord grapes, W. Corse & Bro.; collection grapes under glass, 1st, W. T. Walters; 2d, Samuel Frock; collection garden vegetables, Wm. Corse & Bro.; carrots, W. F. Massey; parsnips, J. Parsons; salsify, Wm. Corse & Bro.; collection squashes, 1st, Wm. Corse & Bro.; 2d, H. Eichelberger; egg plants, Wm. Corse & Bro.; long blood beets, do. do.; turnip beets, do. do.; cabbage, Aug. Huke; Kahl-rabi, do. do., tomatoes, Wm. Corse & Bro.; collection tomatoes, do. do.; lima beans, E. Scott Dance; purple-top strap-leaf turnips, Wm. Corse & Bro.; cucumbers, Wm. Corse & Bro.; sugar corn, do. do.; onions, do. do.; peppers, do. do.; wagon display, 1st, Gunpowder Farmers' Club; 2d, Garrrison Forest Grange.

Collection Flowering Plants—1st, J. Pentland, 2d. H. Eichelberger; Begonias, 1st, Mrs. Wm. Jessop; variegated foliage plants, 1st, J. Pentland; collection cut flowers, 1st, Wm. F. Massey; collection roses, 1st, R. Vincent; rose blooms, do. do.; Verbenas, do. do.; Dahlias, do. do.; basket of flowers, Wm. Treadwell; tub flowers, do. do.; stand of grasses, do. do.; bridal bouquet, R. Vincent; hand bouquets, R. Vincent; button-hole bouquets, Miss Belle Brackenridge; collection hardy evergreens, 1st, W. D. Brackenridge, 2d, Wm. Corse & Bro.; hanging baskets, with plants. Wm. Treadwell.

Manufactures of County.—Best barrel flour made in Baltimore county, Jas. M. Bryan; best dozen brooms made in county, Benj. I. Worthington.

Agricultural Implements and Machinery—For the best, largest, most valuable and varied collection of agricultural implements and machinery, the society's gold medal, to Slifer, Merryman & Co.; for second best ditto, the society's silver medal, to Griffith, Turner & Co.

Under the general discretion given them, diplomas were awarded by the judges to the following:

Thos. Norris & Son, for W. A. Wood's new mower; A. B. Farquhar, for horse-power on wheels and for hand hay-cutter; A. & A. G. Alford, for spring-tooth horse-rake; Roe & Chilcoat, for horse-hoe and cultivator combined; A. G. Mott, for Bell City Feed-cutter; C. Aultman & Co., (H. W. Matthews, agent.) for Buckeye harvester and binder; J. M. Stoddart & Co., (H. W. Matthews, agent,) for Tiger self-dump rake; Joshua Thomas, for Osborne's self-rake reaper; Charles Reese & Co., for the Rystone mangle; Slifer, Merryman & Co., for portable engine, traction engine, portable farm mill, corn and cob mill, farm pump and Geiser thresher and cleaner; John H Buxton, medal for Eclipse windmill and pump.

Carriages and Harness—Family carriage, 1st, T. D. Marshall & Co.; top buggy, 1st, Geo. Hubbard; 2d, T. D. Marshall & Co.; no-top buggy, 1st, W. H. Toner; 2d, T. D. Marshall & Co.; jagger wagon, 1st, Geo. Hubbard; 2d, John A. Hanna; spring wagon, 1st, F. K. Herr & Bro.; special, Herman & Krach; carriage harness for two horses, Jno. D. Hammond & Co.; do. do. one horse, do. do.; riding saddle and bridle, do. do.; lady's saddle and bridle, do. do.; farm saddle, do. do.

WINTER CALVES.—A Wisconsin dairyman asks if there can be any profit in raising calves in winter. This question is now very pertinent since winter dairying is becoming common. Butter bears a higher price in winter, and this induces dairymen to have their calf dropped in fall. Some think the cold weather will add to the cost of keeping the calves, but this is probably a mistake, as the following considerations will show: the milk, after making butter in winter, is in better condition than in summer, as it is seldom sour, and may always be fed sweet. Calves kept in warm quarters will make more growth upon the same quantity of milk in winter than in summer, on account of its better quality, and because, being fed on hay, they seldom scour or have any trouble of the stomach.

Science at Breakfast.

Under this heading the editor of *Science* groups together a great deal of information on the action of tea, coffee and chocolate. The latter, he says, from its large proportion of albumen, is the most nutritive beverage; but at the same time, from its quantity of fat, the most difficult to digest. Its aromatic substances, however, strengthen the digestion. A cup of chocolate is an excellent restorative and invigorating refreshment even for weak persons, provided their digestive organs are not too delicate. Cardinal Richelieu attributed to chocolate his health and hilarity during his later years. Tea and coffee do not afford this advantage. Albumen in tea leaves, and legumin in coffee berrries, are represented in very scanty proportions. The praise of tea and coffee as nutritive substances is, therefore, hardly warranted. Tea and coffee, though of themselves not difficult of digestion, tend to disturb the digestion of albuminous substances by precipitating them from their dissolved state. Milk, therefore, if taken with tea or coffee, is more difficult of digestion than if taken alone, and coffee alone without cream promotes digestion after dinner by increasing the secretion of the dissolving juices. The volatile oil of coffee and the empyreumatic and aromatic matters of the chocolate accelerate the circulation, which, on the other hand, is calmed by tea. Tea and coffee both excite the activity of the brain and nerves. Tea, it is said, increases the power of digesting the impressions we have received, creates a thorough meditation, and, in spite of the movements of thoughts, permits the attention to be fixed upon a certain subject. On the other hand, if tea is taken in excess, it causes an increased irritability of the nerves, characterized by sleeplessness, with a general feeling of restlessness and trembling of the limbs. Coffee, also, if taken in excess, produces sleeplessness and many baneful effects very similar to those arising from tea-drinking. Coffee, however, produces greater excitement, and a sensation of restlessness and heat ensues. For throwing off this condition fresh air is the best antidote.

Domestic Recipes.

Sour-Milk Cheese (Smear Case).—Take some milk, set it on the back of the stove, where it will heat very slowly; if heated quickly it will curdle; when it wheys sufficiently strain through a colander till as dry as possible, then pour the curd into a pan or into the cheese bag, and wash thoroughly with cold water; if it has been heated sufficiently it will not dissolve; tie and hang bag up to drain; when dry add sweet cream enough to make it soft; salt to taste, set it on ice, and serve at tea-time. If it is scalded too much, or if the milk is too sour, it will be crumbly and not fit to eat.

Coffee Custard.—Make a good, strong extract of coffee, by dripping it as slowly as possible; for ten people you will want two cupsful; take eight of the same measures of milk, and beat into the milk the yolks of six eggs; add three ounces of powdered sugar; mix into this two cupsful of coffee; as coffee differs in strength better taste to see that it is sweet enough; pour the mixture into cups, and put the cups in a not too deep pan with boiling water; the level of the water ought not to stand higher than half the cup; do not try and boil the water too hard; about 15 minutes of boiling is necessary.

Fig Pudding.—Chop half a pound of figs very finely; mix them with one-fourth pound of coarse sugar, a tablespoonful of molasses, four tablespoonsful of milk, half a pound of flour, a quarter of a pound of suet, an egg, and a pinch of grated nutmeg; put the pudding into a buttered mold and boil five hours.

To Cook Turnips.—Pare slice, cut in dice an inch square, boil until nearly done, in as little water as possible; to one quart of turnips add one tablespoonful of sugar, salt to make palatable; when they are boiled as dry as possible add two or three spoonsful of cream and a beaten egg, and serve. Excellent.

Pumpkin Pie.—Cut the pumpkin into thin slices and boil until tender in as little water as possible; watch carefully that it does not scorch; drain off all the water—mash, and rub through a sieve, adding, while warm, a small piece of butter. To every quart of the pumpkin, after mashing, add one quart of new milk and four eggs, the yolks and whites beaten separately; white sugar to taste, and cinnamon and nutmeg as desired. The oven in which they are baked must be hot or they will not brown. It is as well to heat the batter scalding hot before pouring into the pie dishes.

Potato Croquet.—One pound mashed potatoes; one egg; one tablespoonful of milk; a little pepper and salt; a few spoonfuls of bread crumbs and cracker dust. The potatoes must be mashed when thoroughly dry. When mashed throw in a small quantity of salt, a little pepper and the yolk of an egg. Stir the yolk with the potatoes over the fire till thoroughly dry. Flour the board well, bake a little of the mashed potatoes and roll lightly in the flour; make them into any shape. When the croquet is well formed, beat well up the white of an egg; roll the croquet in it; throw over all a little bread crumbs or cracker dust.

Gumbo.—Take a nice fat chicken, cut up and put into a pan, and when fried brown put in two quarts of finely sliced okra, four large tomatoes and two onions, peeled and chopped fine. Keep covered with water, and have the kettle tightly closed.

Baltimore Markets—October 1.

Breadstuffs.—*Flour*—The dealings were light today, but the market was very firm in tone. We quote: Howard Street Super $3@3.75. do do. Extra $4@4.75; do. do. Family $5@6; Western Super $3@3.75; do. Extra $4@4.75; do. Family $5@6; City Mills Super $3@3.75; do. do. Extra $4@4.75; do. do. Rio brands Extra $6; Winter Wheat Patent $6.25@7.25; Spring Wheat Family $5@5.75; Minnesota Patent $6.75@7.50; Patapsco Family $6.75; do. Extra $6.55; Chesapeake Extra $6.30; Orange Grove Extra $6.15; Fine $2.50@2.75; Rye Flour $4.75@5.

Wheat.—Southern was quiet but steady. Western was moderately active. We quote: No. 2 red cash $1.07⅞@1.07⅞; do. do. Oct. $1.07⅞@1.08; do. do. Nov. $1.09@1.09¼; do. do. Dec. $1.10¼@1.10⅜; do. do. Jan. $1.10⅞@1.11⅛; Southern Fultz $1.05@1.07; do. longberry $1.14@1.16.

Corn.—Western was firm and higher, though not active. We quote: Western mixed cash 51@51¼; do. do. Oct. 51¼@51⅜; do. do. Nov. 52¼@52⅜; Southern white 55; do. yellow 53@54 cts.

Oats.—Market quiet and easier. We quote: Western mixed 38@39 cts.; do. bright 39¼ cts.; do. white 40 cts.; Southern 40@42 cts.

Rye.—We note sales here to-day of a few small lots at 95c.@$1.00, and we quote it steady at these figures for fair to prime.

Seeds.—Clover we quote as ranging from 6¾ to 7¾ cts. for fair to prime Pennsylvania, with moderate sales within this range; but common, which is very dull, is not quotable above 6@6¼ cts. Timothy is steady and in fair request at $2 70@2.75 ₱ bus.

Mill Feed.—We quote City in good demand and firm at $18.50 for middlings, and $17.50@18 for brownstuff, and Western bran at $17 ₱ ton.

Hay and Straw.—Hay continues in good demand and firm for all kinds, with the receipts and sales principally of Western, and Straw active and firm. We quote: Cecil county timothy, $21@22; Md. and Pa. do., $18@20; Western Hay do., $19@21; mixed do., $18@19; Clover do., $16@17; Wheat Straw $10@12; Oat do., $15@$16; Rye do., $18@20.

Provisions.—We quote as follows: Bulk Shoulders, packed, 6¼ cts.; do. L. C. Sides do., 9 cts.; do. C. R. Sides do., 9¼ cts.; Bacon Shoulders, 6¼ cts.; do. C. R. Sides 9¾@10 cts.; do. Hams, sugar-cured, 12½@13½ cts.; do. Shoulders do., 8 cts.; do. Breasts do., 10¼ cts.; Lard, refined, tierces, 9 cts.; Mess Pork, new, ₱ brl., $18.

Butter.—We quote: New York State, choice, 27@30 cts.; Creamery, choice, 32@33 cts.; Western, choice fresh tubs, 22@24 cts.; do. good to prime do., 18@21 cts.; Glades, choice selections, 24@25 cts.; do. dairies, good to prime, 20@23 cts.; nearby receipts, 20@22 cts.

Cheese.—Market firm, with the receipts liberal and the demand good. We quote as follows: New York State, choice, 13@13¼ cts.; do. do. good to prime 12@12¼ cts.; Western, choice, 12@12¼ cts.

Eggs.—Fresh we still quote at 20 cts. for Western, and 21@22 cts. for nearby ₱ dozen, with the market steady.

Domestic Dried Fruits.—The receipts are more regular, and the market is fairly active. We quote Peaches peeled at 5@8 cts. for common to fair, and 9@12 cts. for good to choice; unpeeled quarters at 4@4½ cts., and halves 5@5½ cts.; Apples 3@6 cts.; Cherries, pitted, at 17@18 cts.; Raspberries at 24@25 cts.; Blackberries at 7 cts., and Whortleberries at 9@9½ cts. ₱ lb.

Cotton.—The market is dull and lower. We quote Middling at 11¼ cts.; Low Middling at 11 cts.; Strict Good Ordinary at 10¾ cts.; Good Ordinary at 10½ cts.

Poultry.—The demand is moderately active and prices about steady, with supply ample but not excessive. We quote Chickens at 11@12 cts. ₱ lb. for young, and 8@9 cts. for old, and Ducks at $3 ₱ dozen.

Live Stock.—*Beef Cattle*—The market this week was slow. We quote: Best Beeves $4.87@5.37; first quality $3.87@4.75; medium or good fair quality $3.62@$3.62; Ordinary thin Steers, Oxen and Cows $2.20@2.50; extreme range of prices $2.20@5.37; most sales were from (₱ 100 lbs.) $3.62@4.50. *Milch Cows*—Trade is not active in cows. We quote at $25@45 ₱ head, as to quality.

Swine.—We quote common Hogs and Rough Sows and Stags at 6½@7 cts., and the better grades at 7¼@7⅝ cts., with a few extra at 7¾ cts. ₱ lb. net.

Sheep and Lambs.—There is a fairly active demand reported in all the yards for good stock of all kinds, while common is reported dull. We quote butcher Sheep at 3½@4¼ cts.; Lambs 4@5½ cts. ₱ lb. gross; stock Sheep at $1.50@3.25 ₱ head; Wethers for feeding at 3½@4 cts. ₱ lb. and good Ewes at $2.50@3.25 each.

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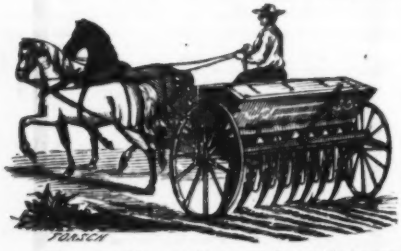

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THE EMPIRE THRESHER AND SEPARATOR, in sizes suited either for farm purposes or thresher's outfit.

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FERTILIZERS OF STANDARD BRANDS—Griffith & Turner's Animal Bone Phosphate, a high-grade Phosphate prepared from animal bone, has given great satisfaction, and is popular wherever known. **Alkaline Plant-Food** is especially adapted to Wheat, Rye, Corn, Potatoes and Vegetables, requiring fertilizers rich in Potash. Griffith & Turner's Unsteamed Raw Bone, Slingluff's and Baker's Dissolved Bone, Turner's Excelsior and Phosphate, Holloway's Excelsior and Phosphate, Lister's Phosphate, Whitelock's Vegetator, Peruvian and Orchilla Guano, Plaster, Acid and Chemicals for Compounding Fertilizers. **Repairing of All Kinds at Shortest Notice.**

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Hyacinths, Tulips, Crocus, Narcissus, Crown Imperial, &c., &c., of the finest quality, our own importation from HOLLAND DIRECT.

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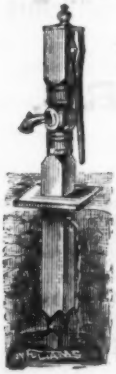

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LITTLE'S CHEMICAL FLUID.

Non-poisonous, Non-corrosive Disinfectant, and Specific for Scab and Mange, Ticks, Lice, Fleas, and all Insect Pests.

It is now extensively used in all the great wool-growing countries of the world, and is rapidly superseding all other preparations. In Australia it is the recognized Dip, and in New Zealand it is used in the Government Dipping Stations, and is highly recommended by the principal Sheep Inspectors. In the United States also, although only recently introduced, it is having a large sale, especially in California, and during the last twelve months many thousand gallons have been shipped to that State alone. It greatly increases the quantity and improves the quality of the wool.

It is before all other Dips in the simplicity of its preparation. It mixes at once with **cold** water, and a single trial will prove that on coming into contact with the water the whole is changed into a milk-white Dip, which is **distinctly not the case with any other material.**

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The "Superior"

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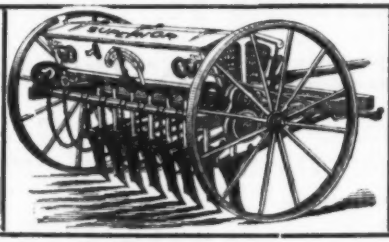

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The Only Perfectly Adjustable Force-Feed Drill in the Market.

NO CHANGE OF GEAR WHEELS.

ABSOLUTELY NO BUNCHING OF THE GRAIN. The change from small to large quantity made instantly, without stopping the team. The speed of the Feed Cups is always the same for large or small quantities, thus insuring regular sowing.

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THIS FERTILIZER ATTACHMENT IS UNSURPASSED, and will sow all kinds with the greatest regularity. Our GRASS SEEDER is a Force-Feed and in a moment can be changed to sow either in front or rear of Hoes.

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We also keep always on hand a fine line of **CIDER MILLS** and other AGRICULTURAL IMPLEMENTS.

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WE ALSO MANUFACTURE THE

Superior Super-phosphate

A High-Grade Fertilizer for Wheat and all Grain Crops. Rich in all the essentials required for the PRODUCTION of WHEAT, and sold at a moderate price. Send for Circular and prices.

WANTED—By a Practical Farmer a FARM STOCKED TO SHARES OR RENT, or a position as MANAGER OF A FARM from January next. References given. Address T. B. GLOVER, West River, A. A. Co., Md.

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Broadcast Seed Sower

For sowing Wheat, Rye, Barley, Oats, Timothy Seed, Clover Seed, &c.

With this machine a man can sow from FOUR TO EIGHT ACRES PER HOUR in the best manner. Every farmer should have one. PRICE SIX DOLLARS.

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The undersigned offers a fine stock of the following at low rates: **New Pears, New Peaches, New Cherries, New Grapes, New Strawberries, &c.**

FRUIT TREES of all KINDS

An Extensive Stock, viz:

PLUMS, CHERRIES, APRICOTS, APPLES, Suitable to the South, &c.

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Large importations direct from the leading growers in Holland. First quality Bulbs: Hyacinths, Lilies, Tulips, &c. New and rare Greenhouse Plants, Winter-Blooming Plants.

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Having added 100 acres to our Nurseries for the cultivation of **Small Fruits,** we are prepared to furnish stock to those planting largely as low as they can be bought in the country.

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☞WHITE PINE and YELLOW PINE **LUMBER** FOR BUILDING.

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My new "PRICE-LIST" for coming fall is ready, and will be mailed free to all applicants giving Post-Office address *plainly written*, (including name of county.) My prices are "SUB-SOILED," so far as a downward tendency goes; while I am happy to inform my former customers and all the readers of the *American Farmer* that the growth of my stock was never better than the present season. Peach and Apple trees are particularly fine, while the list of valuable varieties has been greatly increased. A complete assortment of all kinds of Fruit, Shade and Ornamental Trees; an immense stock of Grape Vines, Asparagus Plants, Flowering Shrubs, &c., &c. Correspondence solicited.

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PURE BONE DUST,

Dissolved Pure Raw Bone,

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Also Agents for F. O. Norton's Rosendale and Bridges & Henderson's Round Top Cements.

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The undersigned, PIONEER in the manufacture of Fertilizers in this city, and ORIGINATOR in 1858 of the Formulas and processes of manufacture of

"Excelsior" and Ammoniated Phosphate,

So well and favorably known by the Agricultural public, relying upon his experience and personal reputation hitherto acquired in the uniform excellence of these Fertilizers, as manufactured by him, continues to offer them to the Farmers and Planters of Maryland and Virginia, with the assurance that the high standard quality of each will be maintained as heretofore.

The above are the most concentrated FERTILIZERS ever offered to the farmers and planters—combining all the stimulating qualities of Peruvian Guano, and the ever-durable fertilizing properties of Bones, in fine, dry powder, prepared expressly for drilling,—it is the universal opinion of the farmers of Maryland and Virginia, after over twenty years experience in the use of the EXCELSIOR manufactured by me, in growing Wheat, that an application of 100 pounds is equal in its effects to 200 pounds of any other Fertilizer or Guano, therefore fully 50 per cent. cheaper.

With my present advantages and superior facilities for manufacturing, I challenge competition with any Fertilizer sold in the United States, in Quality, Mechanical Condition and Price.

By strictly adhering to my Original Formulas, using only the most concentrated materials, and superintending in person their manufacture—as for the past twenty years—

Uniform Quality is Guaranteed.

☞Farmers, to secure the ONLY GENUINE EXCELSIOR and PHOSPHATE, prepared according to my Original Formulas established in 1858, should see that every Bag is branded as above, with the ANALYSIS and MY NAME IN RED LETTERS.

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American Butter Wrapper.

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BUTTER RAGS NO LONGER NEEDED.

Having fully tested the merit of our Water-proof Paper as a Butter-wrapper, we offer it with confidence to all who make or handle butter as being in all respects superior to linen or cotton cloths, for the following reasons:

FIRST—It is always sure to be **sweet** and **clean.**

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One of the most popular butter-makers of Chester Co., Pa., says: "It is all you claim for it, and more." And we have the voluntary testimony of hundreds of others to the same effect. Samples, with prices, will be sent by mail on receipt of a three-cent postage stamp.

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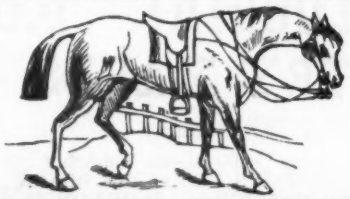

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DEVON CATTLE. SOUTHDOWN, LEICESTER AND MERINO SHEEP. POLAND-CHINA, BERKSHIRE and ESSEX HOGS A SPECIALTY.

All bred from the most noted and fashionable strains of Prize-Winning Stock.

I took first premiums in their classes on Devon Cattle, Leicester and Merino Sheep, Poland-China and Essex Hogs, at Virginia State Fair in 1875 and 1876, besides a large number of Prizes taken at Piedmont and Lynchburg Fairs.

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SUPER-PHOSPHATE

FOR ALL CROPS.

It is made of the best and most concentrated materials, possesses all the virtues of PERUVIAN GUANO and BONE-DUST combined, and is well adapted to Wheat, Corn, Oats, &c., producing abundant crops where all others fail. Having a large percentage of Soluble and Precipitated **Phosphoric Acid and Ammonia,** it is without doubt **the richest Commercial Fertilizer in the country.**

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Made only of Slaughter-house Bones, contains a larger percentage of AMMONIA and BONE PHOSPHATE LIME than any other brand in the market.

WE OFFER

One Thousand Dollars!

For the Detection of any Impurity in our Manufacture of Bone.

We do not steam or bake our Bones, or otherwise treat them so as to destroy the animal matter, which is rich in ammonia.

The Best Article in the Market

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Super-Phosphate of Lime

—OR—

DISSOLVED BONE,

MADE OF PURE SLAUGHTER-HOUSE BONES

It is richer in Soluble Phosphoric Acid and Ammonia than any similar article in the market.

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And other materials for making

Home Fertilizers

Muriate Potash, Kainit,
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A full supply of PURE Materials always on hand and for sale at lowest market

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"Excelsior," "Ammoniated Bone Super-Phosphate," "Pure Dissolved Bones."

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Forming the most concentrated, universal and durable FERTILIZER ever offered to the farmer,—combining all the stimulating qualities of Peruvian Guano and the ever-durable fertilizing properties of Bones in fine, dry powder, prepared expressly for drilling, and can be applied in any quantity, however small, per acre. It is the opinion of many close-calculating farmers, after TWENTY-TWO YEARS experience in testing it side by side with other popular fertilizers, that an application of 100 pounds of "EXCELSIOR" is equal to 300 pounds of any other fertilizer or guano, and therefore fully 100 per cent. cheaper.

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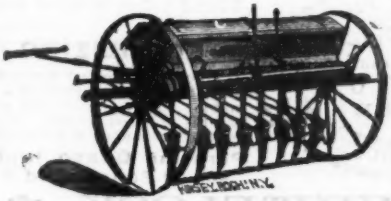
GRAIN  DRILL.

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The only Seeder readily adjustable to work in front or rear of Tubes, with equal facility for work in either position, securing uniformity and certainty of distribution of all grass seeds, large, small or mixed.

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Is thoroughly practical in its operation, simple in its construction, possessing all the endurance and wearing quality of the Pin or Peg Tube. Using no gum or rubber in its construction, it is impervious to weather or exposure, and if accidentally broken can be repaired at your homes, saving the cost of transportation and delay.

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Garmore's Artificial Ear Drums

PERFECTLY RESTORE THE HEARING and perform the work of the **Natural Drum.** Always in position, **but invisible to others.** All Conversation and even whispers heard distinctly. **We refer to those using them.** Send for descriptive circular.

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This institution will re-open September 15th. A full course of instruction will be given, with Lectures upon History, Belles-Lettres and the Natural Sciences.

Terms: $225 per school year. Languages, Music and Drawing, extra. Day scholars, $40 per school year. For circulars, address

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AMMONIATED SUPER PHOSPHATE
W. WHITELOCK & CO'S TRADE MARK
VEGETATOR
BALTIMORE
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THE CROP PRODUCER

This article has for its base

Bones Finely Ground and Thoroughly Dissolved

And is so rich in

FERTILIZING PROPERTIES

As to carry the wheat through the severest winter. While o her manures may produce a good crop of straw, there is nothing on the market that will uniformly bring the same quantity of wheat per acre. Apply three-fourths only as much as of other brands. Also for sale,

Peruvian Guano, High-Grade Pure Dissolved Bones, Acid Phosphate, Very Rich.

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Prepared Agricultural

Prepared Expressly for Each and Every Crop.

ONLY $15 PER TON—16 BAGS.

It is a permanent improver of the soil. The second and third year's application does not require any more than the first to produce the same results, and no more required per acre than of the other manure, but larger results as per tests. Send for testimonials and see what others have done with it.

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Dyspepsia, Nervousness, Bilious Attacks, Sick and Nervous Headache, Constipation of the Bowels, Kidney and Bladder Affections, Sour Stomach, Chills and Fevers, Female Diseases, All Bilious Affections, and is an Excellent Stomachic.

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I am prepared to furnish PIGS of the best blood at the following prices, boxed and delivered to express:

SINGLE PIG. $6.
PAIR, $10.
TRIO, $13.

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Brighton P. O., Montgomery County, Md.

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FOR SALE.

On account of want of room to properly accommodate them during the winter, I offer a few animals of all ages *at greatly reduced prices, if promptly applied for.*

A record of thirty premiums (the true test of merit) won this season, in many hotly-contested rings, in some of which were the first prize and sweepstakes winners at the Canadian, Illinois and St. Louis shows, is sufficient (without further remark) to prove the high quality of my stock. Correspondence solicited before purchasing elsewhere. Representations and safe delivery guaranteed. I have also **Bronze Turkeys** for sale.

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This Powder has proven to be a most reliable preparation in all the ordinary diseases of **HORSES, CATTLE, SHEEP, SWINE and POULTRY.** It will keep the animal in a complete, thrifty, healthy condition, naturally producing to its full capacity without any injury to its system.

Your Cow is sure to yield an increase of milk and butter of at least 25 per cent. Your stock will fatten on one-fourth less feed.

Especially does this Powder show its good effect on **HOGS.** It has also been found a sure cure and preventative of **CHICKEN CHOLERA and HOG CHOLERA.** Price 25 cents per pack of 12 ounces. 5 packs $1.00. 1 dozen $2.00. A pamphlet with full particulars. Address,

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The only Southern Rake and Drill Factory in the Country.

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Containing 150 acres; about 25 to 30 acres in thriving timber, principally oak and chestnut; it is well watered and admirably adapted to a dairy or market farm; the soil is very kind and susceptible of the highest improvement; it is now principally set in grass. It is at the 15-mile stone on the York turnpike, fronting on both sides of the road, and five stations on the Northern Central R. R. can be reached at distances of 1 to 3 miles, by good county roads. This is the circle of the members of the Gunpowder Club, and is undoubtedly one of the best locations in the county. Churches, of all denominations, and schools, public and private, are convenient. The York turnpike is one of the very best, and the distance from the city permits a round-trip a day, for wagoning. Probably no healthier spot in the world can be found. It is laid off in fields of 12 to 15 acres, to most of which easy access is had to water for stock. The dwelling, which is commodious, and large barn, are of stone, with other outhouses, though old, yet can be made very comfortable at a reasonable expense; and there are several admirable sites for residences on the premises. This property could be advantageously divided into small lots and sold at a very great advance on the price asked for the whole. Lots on the road have brought as high as $500 an acre, and the extent of the frontage on the turnpike, in the hands of an enterprising man, could be turned to excellent account, but the present owner is indisposed to take the trouble requisite to accomplish this, and would prefer selling the whole together. A gentleman with a very small income independent of the farm, could live on this place without labor, saving the rent of a city residence, by renting the fields on shares to be farmed under his control, reserving a garden and stabling, and the pasturage necessary for his stock. A small tenant's house on the premises would rent for the amount of taxes on the place. As I cannot occupy the place myself, I am willing to sell it on the most reasonable terms, or exchange it for city property in a good locality. For further particulars apply to the subscriber, at office of *American Farmer*.

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New Upright 13 Stops, 3 set Golden Tongue Reeds, 2 Oct's, 2 Knee Swells, Walnut Case, warr'd 6 years, Stool & Book $95. New Pianos, Stool, Cover & Book, $143 to $325. Before you buy be sure to write me. Illustrated Newspaper sent Free. Address DANL. F. BEATTY, Washington, New Jersey.

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We have now on hand a large stock of No. 1 PERUVIAN GUANO "LOBOS," with the following analysis guaranteed:

Ammonia, - - - - - -	6 Per Cent.
Bone Phosphate of Lime, -	40 " "
Potash, - - - - - - -	4 " "

The GUANO is perfectly dry and free from lumps. Purchasers will please see that the bags have Hobson, Hurtado & Co.'s name stamped on them, they being the agents of the Peruvian Government.

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Composed of the most concentrated materials, it is

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All Ages, Buck, Ewes and Lambs.

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All Herd-Book Animals.
For sale by
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FOR SALE—A few Herd-Registered **AYRHIRE BULL CALVES.**

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Translated by J. B. BROWN, with a history of the Art in Maryland by Francis Morris, Esq.

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Window Sashes, Doors, Blinds, Mouldings, Brackets, Hand Railings, Balusters, Newel Posts, Bracket Shelves, Barge Boards, Window Caps, Door Caps, Pews and Church Work, Blind Hinges, Builders' Hardware, Wood Mantels, Window Frames, Door Frames, Paints, Oil, Putty, Glass, Lumber, Bricks, Lime, Sash Weights, Sash Cord, Porch Columns, Tree Boxes.

THE BEST WORK AT LOWEST PRICES.

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From Mr. J. D. Guthrie, of Shelby county, Ky., State Grange Purchasing Agent, and famous grower of Long-Wooled Sheep.

SHELBYVILLE, Ky., May 6th, 1878.

MESSRS. M'GINNIS, TAYLOR & HOLDERBY:

GENTLEMEN—In reply to your request for my opinion, I take pleasure in saying the M'Ginnis Harrow has given universal satisfaction.

It pulverizes deeply, and its smoothing capacity is equal to any Harrow I have ever tried.

It stands unrivaled for destroying the toughest sods with its knife-like teeth, perfectly reducing the sod with two harrowings, presenting a thorough seed-bed for any kind of grain or seed.

Its draft is much lighter than the ordinary Harrow.

It is equal to the Thomas Harrow in lightness of draft, while it possesses decided advantages over the Thomas in DEEP PULVERIZATION, STRENGTH AND DURABILITY.

I have said thus much from observation of its working on the field.

While the Thomas Harrow is better adapted for the shallow covering necessary for very small seeds, for general purposes I think the M'Ginnis Patent IS WITHOUT A RIVAL.

Yours truly, J. D. GUTHRIE.

GILPIN'S VEGETABLE LIVER PILLS

Are prepared, with great care, from medical plants, are *coated with sugar* that they may be taken by the smallest child and upon the most delicate stomach; are intended especially to act upon the Liver—thereby relieving all such diseases as COSTIVENESS, HEADACHE, PARALYSIS, DYSPEPSIA, COLDS, JAUNDICE, and all diseases of a Bilious origin. No better evidence can be offered in favor of these Pills than the very fact that where their ingredients are known to family physicians, they are using them in their private practice. We append the following from one of our most prominent physicians:

OAKLAND, June 28, 1859.

DR. GILPIN—After carefully examining the formula of your Sugar-Coated Pills, I feel it but justice to say, that the combination is certainly perfect, and comprises the only remedies I ever believed were the proper ones to be used in diseases of a bilious origin. I shall take pleasure in recommending them not only to my patients, but the entire medical profession. Yours truly, J. M. WISTAR, M. D.

From one of the leading retail druggists of West Virginia:

WESTON, W. VA., June 18, 1860.

MESSRS. CANBY, GILPIN & CO.—Gents: Please send by express twelve dozen Gilpin's Vegetable Liver Pills. I have the most flattering accounts from all who have used them, and believe the day is not far distant when they will supersede all others. Yours, F. M. CHALFANT.

We could fill several pages with certificates, &c., from prominent men throughout the country, but prefer to let the Pills in the future, as they have in the past, rest entirely on their own merit—knowing that wherever they are known their use will pass down from generation to generation.

GILPIN'S VEGETABLE LIVER PILLS are sold by all respectable Druggists and Country Storekeepers throughout the United States and Canadas.

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Prices and Descriptive Circulars furnished on application, and correspondence solicited from all wanting anything in my line.

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WHY DOES

a woman's health so often break down at an early age?

Put a man at the wash-tub, let him get heated from the hot suds until every pore is opened, then let him stand over the filthy steam that comes from scalding and boiling clothes, that are full of sweat and exhalations from the skin, and his health certainly would break down before long; and yet this terrible ordeal is exactly what

A WOMAN

has to go through on wash-day; and besides, with her clothing wet from perspiration at the hot work, she has to risk her life by going out in the air to hang up the clothes.

Even those not at the work are in the unhealthy atmosphere; its smell, so apparent to visitors, showing that it finds its way through the house,—the family, however, often becoming so accustomed to the peculiar odor from its own wash as not to notice it.

These facts, which are known to be true by every housekeeper, readily explain why so many women suffer with Rheumatism, Weak Nerves or Neuralgia, and

LOOK OLD

while yet young in years; and Physicians and Boards of Health cannot draw attention too strongly to the injurious effects of the usual way of washing, with its necessary steam and scalding or boiling to get the clothes pure and sweet-smelling, especially as it is often the direct cause of those dreadful diseases, Diphtheria, Typhoid Fever and Consumption. Fortunately this trouble can be avoided; scalding, boiling and steam done away with; clothes made sweet and beautifully white; **from the saving in fuel, the wash done at a less cost than when home-made Soap is used,** and very much

SOONER THAN

by the old way, by using **FRANK SIDDALLS SOAP,**—a Soap so Purifying and Cleansing that the dirtiest clothing can be washed in lukewarm water, with very little rubbing, and Clothes, Bedding and utensils used by the sick disinfected and cleansed without either scalding or boiling; while the work is so light that a girl of 13 or 13 can do a large wash without being tired; and yet so mild and healing is this Soap, that for toilet and shaving it has no equal, and physicians advise its use in preference to imported Castile Soap on wounds and sores and to wash the youngest infants.

Now that there is a remedy for this "great wash-day evil" **so economical in its use as to be within the reach of the poorest,** there is not a women or

A MAN

who is not directly interested in having used in their homes **THAT WONDERFUL SOAP,** which, **when properly tried,** not only does away with the hard work, offensive smell and fearful steam on wash-days, but makes the white pieces whiter, colored pieces brighter and flannels softer than they can be made by washing the old way, and also leaves every article as clean, as sweet and as pure as if never worn.

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Highest Honors and Awards

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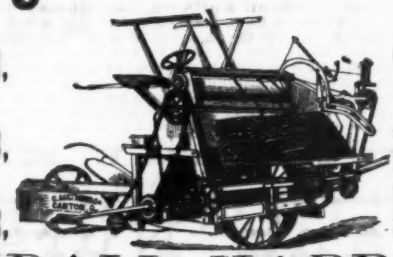

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FOR SALE—Thoroughbred young **Devon Bulls** and young **Rams** of the Shropshire breed; several of the young bulls were sired by the IMPORTED BULL MASTER JAMES, the winner of several prizes in England; amongst others the first prize given to his class at the show of the Royal Agricultural Society of England, held at Birmingham in July, 1876. The young Rams were all sired by IMPORTED Rams, purchased at high figures, from one of the very best flocks in England, and several of them are out of Ewes recently imported from the same flock as the Rams, the others being out of Ewes obtained from the celebrated flock of Mr. T. Conyer, of Waldberg, near Haverstraw, in the State of New York. The young Bulls offered for sale are by MASTER JAMES, the sire of the Grand Prize Bull LORD NEWSHAM, and MASTER JAMES himself gained first prize of his class at the Birmingham show of the Royal Agricultural Society of England in 1876. Particulars as to pedigrees, prices, &c., may be obtained by applying to

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ORNAMENTAL AND FRUIT TREES, FLOWERING SHRUBS, AND HERBACEOUS PLANTS.

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ROSES on their own roots, with the newest of **BEDDING-OUT** plants by the dozen or 1,000, for which we have issued a separate Catalogue.

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All PURE Chemicals for mixtures, compounds of formulas for fertilizer mixtures, as low as any house for cash. Write for prices.

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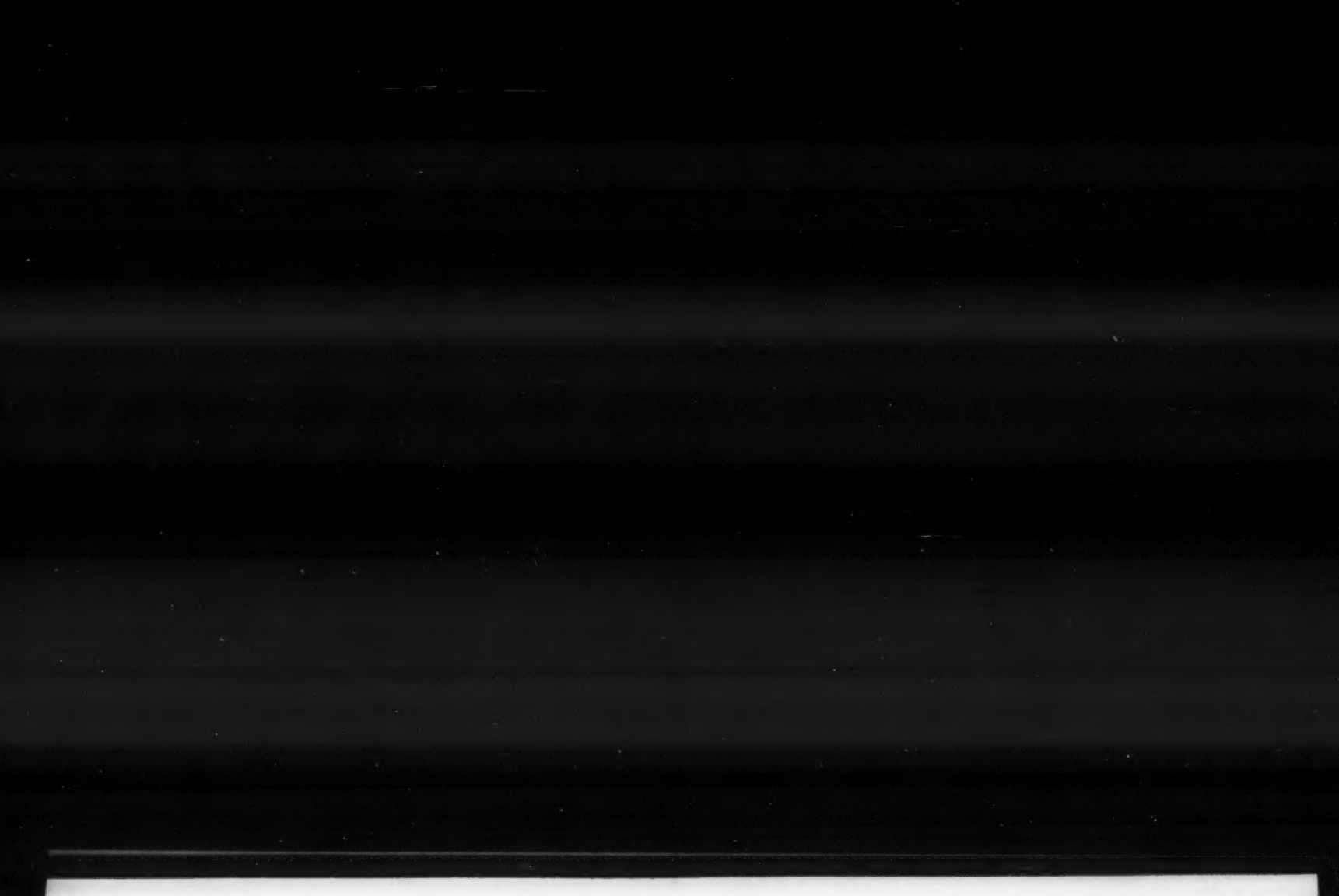
Entered at the post-office at Baltimore at second-class rates.



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We are now offering to the Trade the following WELL-KNOWN BRANDS OF GOODS, which we guarantee fully up to Standard:

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DISSOLVED GROUND BONE,

Containing 3 per cent. of Ammonia.

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Containing 40 to 44 per cent. Soluble Bone Phosphate.

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Containing 28 to 32 per cent. Soluble Bone Phosphate.

To meet the demand for a high-grade Fertilizer, we are offering **SLINGLUFF'S NATIVE SUPER-PHOSPHATE**—prepared entirely from Animal Bone—highly ammoniated.

Also, **SLINGLUFF'S No. 1 AMMONIATED SUPER-PHOSPHATE.** This we can confidently recommend as one of the best fertilizers sold in the market at a low price.

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Where they have introduced the MOST COMPLETE MACHINERY for compounding Concentrated Fertilizers, that their great experience has enabled them to so successfully introduce to the Planters of the Middle and Southern States.

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So well-known and of UNDOUBTED EXCELLENCE.

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A High-Grade Fertilizer of KNOWN MERIT.

Dissolved Bone Phosphate

Prepared from GROUND ANIMAL BONES.

ACIDULATED SOUTH CAROLINA and NAVASSA PHOSPHATES

AMMONIATED ALKALINE PHOSPHATE,

A complete manure, endorsed by the Patrons, who have used it with great satisfaction for the last 5 years, and is on sale by Grange Agents at Baltimore, Richmond, Norfolk, Petersburg and Alexandria.

RAW and STEAMED BONES, POTASH SALTS,

And all Fertilizing Materials in Store and for Sale.

SPECIAL COMPOUNDS PREPARED ON ORDERS.

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